24686

BLACK & VEATCH Waste Science, Inc.

400 Northridge Road, Suite 350, Atlanta, Georgia 30350, (404) 594-2500, Fax: (404) 587-2930

US EPA -- Region IV
Site Inspections
Work Assignment No. 12

BVWS Project 52012.329
August 10, 1994

Mr. Narindar Kumar
Chief, Site Assessment Section
U.S. Environmental Protection Agency
345 Courtland Street, NE
Atlanta, Georgia 30365

Subject: Draft Site Inspection Prioritization
Kennon (Genesco) Site
Brentwood, Williamson County, TN
EPA ID No. TND981473515

Dear Mr. Kumar:

Enclosed please find one copy of the Draft Site Inspection Prioritization for Kennon (Genesco) Site in Brentwood, Williamson County, Tennessee. If you have any questions, please contact me at 404/643-2320.

Very truly yours,

BLACK & VEATCH Waste Science, Inc.

Paul Moisa for

Victor Blix
Project Manager

fw
Enclosure

cc: Doug Thompson, EPA PO, w/o enclosures
Deborah Davidson, EPA CO, w/o enclosures
Earl Bozeman, EPA WAM, w/o enclosures

REC'D
AUG 11 1994

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

4WD-WPB

AUG 1 1 1994

Victor Blix
Black & Veatch Waste Science, Inc.
400 Northridge Road, Suite 350
Atlanta, GA 30350

RE: Site Inspection Prioritization
Site Name: Kennon (Genesco)
EPA ID#: TND981473515

Dear Mr. Blix:

I have reviewed the SIP report on the above referenced site and made the following decision:

X Report acceptable as is and will serve as final SIP for the site. Please send me an additional copy of the report and references.

___ Site reconnaissance, additional documentation and/or HRS scoring scenarios required. See comments section for details.

___ Field sampling is needed at this site. See comments section for details.

___ Report needs revisions as indicated in comments section. Please revise and submit final no later than ___/___/___.

Comments:
Send 2 copies of the final SIP.

If you have any questions regarding this matter, please contact me at 347-5059 ext. 6149 .

Sincerely,

Site Assessment Manager

cc:
Earl Bozeman, WAM
Doug Thompson, PO
Debbie Davidson, CO

Halliburton NUS
CORPORATION

2075 West Park Place, Suite F
Stone Mountain GA 30087

(404) 413-0965
FAX (404) 413-6733

C-92-6-4-11

U.S. Environmental Protection Agency
Kennon (Genesco) Site
Work Assignment 12

July 21, 1994

AUG 1 1 1994

Mr. Narindar Kumar, Chief
Site Assessment Section
U.S. Environmental Protection Agency
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Subject: Site Inspection Prioritization
Kennon (Genesco) Site
Brentwood, Williamson County, Tennessee
EPA ID TND981473515

Dear Mr. Kumar:

Halliburton NUS Corporation has been tasked by BLACK & VEATCH Waste Science, Inc., under U.S. Environmental Protection Agency (EPA) Contract 68-W9-0055, to conduct a Site Inspection Prioritization at the Kennon (Genesco) Site in Brentwood, Williamson County, Tennessee. In accordance with the Kennon Site scope of work, a preliminary Hazard Ranking System (HRS) score was prepared to determine the need for future activities at the site.

The Kennon Site is located off Split Log Road in a rural area east of Brentwood in Williamson County, Tennessee (Refs. 1, 2). The geographic coordinates of the site are 35°57'22" north latitude and 86°46'27" west longitude (Refs. 2, 3). The 10-acre site is located on a 150-acre tract of farmland owned by Emmett and Rose Kennon. The site is currently undergoing remediation. Phosphate was mined on the farmland property between 1972 and 1974, and one pit was left unreclaimed. In 1978, this mine pit and four additional trenches were used for the disposal of industrial wastes, consisting of organic solvents, adhesives, and organic fillers from General Adhesives, which at that time was a division of Geneso, Inc. (Ref. 4, p. 1). These contaminants included acetone, methyl ethyl ketone, toluene, 1,1,1-trichloroethane, trichloroethylene, and various other organics (Ref. 1).

The site was discovered in 1985 when Genesco officials learned of the previous disposal activity and notified the Tennessee Department of Environment and Conservation (TDEC). The State began a sampling investigation of springs an wells in the area and learned that contamination had indeed spread to a nearby spring (the Hackett Spring), and to onsite monitoring wells (Ref. 4,

p. 1). They then instigated remedial action at the site. The first steps were to build a silt fence to prevent contaminated sediment from leaving the property and to provide an alternate water supply to residents in the area who used private wells as their potable water source. Genesco has cooperated with the State in all actions concerning this site (Ref. 4, p. 1).

At the present time, the site is still undergoing remediation. Genesco hired Geraghty and Miller to perform the remediation tasks. A subsurface drain was designed and installed in 1989 to intercept the flow of groundwater, and the water is treated by the City of Brentwood Sewer System. Large mechanical screens were used from June 1990 to September 1991 to separate semi-solid and solid adhesive wastes from the soils. Bioremediation is also presently being performed. The site is being remediated in accordance with TDEC Order 86-3013, issued March 5, 1986 (Ref. 4, p. 1).

A preliminary HRS score for the Kennon Site was calculated using the Site Inspection Worksheets. Pathways evaluated include groundwater migration, surface water migration, soil exposure, and air migration. A worst case scenario was used to determine a maximum potential score for the site. This score reflects a waste quantity of 10 based on 800 drums of material (Ref. 1). Maximum waste characteristic values were used for all pathways.

The City of Brentwood supplies potable water to the residents in the area of the Kennon site. As previously stated, some residents were using private wells as their water source but since work began at this site, water lines have been installed (Ref. 4, p. 1). The City of Brentwood obtains water from Metro Nashville and Harpeth Valley Utilities. Both systems obtain water from intakes on the Cumberland River (Ref. 5, p. 2).

Surface water from the site flows into an unnamed intermittent stream which is actually located on site. This stream flows approximately 0.5 mile southwest until it enters the Little Harpeth River. The Little Harpeth River flows south until it empties into Clovercroft Lake (Ref. 2). The Little Harpeth River is a small to moderate stream. Flow rates are unavailable for this water body. The surface water intakes on the Cumberland River are not connected with the surface water pathway of this site (Ref. 2). There are no endangered or threatened species along the surface water pathway (Ref. 6). The Little Harpeth River is used for recreational fishing, and Clovercroft Lake is used for both recreation and fishing (Ref. 7). A topographic analysis of the vicinity identifies no wetlands (Ref. 2). However, wetland maps for this area are currently unavailable.

The Kennon site is located in a rural portion of Williamson County. The nearest city is Brentwood, approximately 1.5 miles northwest of the site. There are no schools or day-care centers within 1 mile of the site. The nearest residence is approximately 0.5 mile to the northwest (Ref. 2. The population within a 4-mile radius of the site is approximately 19,317 persons, distributed as follows: 0.5 - 1 mile: 7 persons; 1 - 2 miles: 434 persons; 2 - 3 miles: 11,707 persons, 3 - 4 miles: 7,169 persons (Refs. 2, 8, 9). One threatened plant, the Price's potato-bean (Apios priceana), and one endangered plant, the leafy prairie clover (Dalea foliosa), have been identified in Williamson County (Ref. 6).

HRS SCORING SUMMARY

Sgw	=	0
Ssw	=	.04
Sso	=	0
Sa	=	.07

OVERALL SCORE = 0.04

Due to low targets and ongoing remedial work, no further action is recommended for the Kennon (Genesco) site.

Attached are additional references collected during this investigation. If you have any questions or comments, please contact Victor Blix at (404) 594-2500.

Very truly yours,

Judy Pinkerton for

Teresa Sawyer
Project Manager

TS/gwb

Enclosures

cc: Philip A. Blackwell
File

REFERENCES

1. Potential Hazardous Waste Site, Site Inspection Report (EPA Form 2070-13) for the Kennon (Genesco) Site in Brentwood, Williamson County, Tennessee. Prepared by Thomas A. Moss, Tennessee Department of Health and Environment, Superfund Division, May 12, 1987.

2. U.S. Geological Survey, 7.5 minute series Topographic Quadrangle Maps of Tennessee: Franklin 1981, Nolensville 1957 (Photorevised (PR) 1979), Antioch 1968 (PR 1983), Oak Hill 1968 (PR 1983), scale 1:24,000.

3. Latitude and Longitude Calculation Worksheet #1 for the Kennon Site. Prepared by Teresa Sawyer, Halliburton NUS Corporation, June 7, 1994.

4. After-Action Report including Air Monitoring Program, Water Monitoring Program, and Site Security Program for the Kennon Site in Brentwood, Tennessee. Prepared by Mosley and Associates, Inc., January 1993. Revised December 1993.

5. Brenda Apple, Tennessee Department of Environment and Conservation, Superfund Division, Public Drinking Water Systems in Middle Tennessee, December 18, 1992.

6. U.S. Fish and Wildlife Service, <u>Endangered and Threatened Species of the Southeastern United States</u> (Atlanta, Georgia). 1993.

7. James Brian, Tennessee Wildlife Resources Agency, telephone conversation with Teresa Sawyer, Halliburton NUS Corporation, June 13, 1994. Subject: Fishing and recreation near the Kennon site.

8. U.S. Environmental Protection Agency, <u>Graphical Exposure Modeling System (GEMS) Data Base</u>. Compiled from U.S. Bureau of the Census (1980).

9. Teresa Sawyer, Halliburton NUS Corporation, memorandum to file for Kennon Site, June 13, 1994. Subject: Population of the City of Brentwood.

Site Name: The Kennon Site

Location: Brentwood, Williamson County, Tennessee

GROUND WATER MIGRATION PATHWAY SCORESHEET

FACTOR CATEGORIES AND FACTORS

	Likelihood of Release to an Aquifer	Maximum Value	Value Assigned	
1.	Observed Release	550	550	
2.	Potential to Release			
	2a. Containment	10	-	
	2b. Net Precipitation	10	-	
	2c. Depth to Aquifer	5	-	
	2d. Travel Time	35	-	
	2e. Potential to Release [lines 2a x (2b + 2c + 2d)]	500	-	
3.	Likelihood of Release (higher of lines 1 or 2e)	550		550
	Waste Characteristics			
4.	Toxicity/Mobility	a	10	
5.	Hazardous Waste Quantity	a	10	
6.	Waste Characteristics	100		3
	Targets			
7.	Nearest Well	50	0	
8.	Population			
	8a. Level I Concentrations	b	0	
	8b. Level II Concentrations	b	0	
	8c. Potential Contamination	b	0	
	8d. Population (lines 8a + 8b + 8c)	b	0	
9.	Resources	5	0	
10.	Wellhead Protection Area	20	0	
11.	Targets (lines 7 + 8d + 9 + 10)	b		0
	Ground Water Migration Score for an Aquifer			
12.	Aquifer Score [(lines 3 x 6 x 11)/82,500][c]	100		0
	Ground Water Migration Pathway Score			
13.	Pathway Score (S_{GW}), (highest value from line 12 for all aquifers evaluated) ***	100		0

a Maximum value applies to waste characteristics category.

b Maximum value not applicable.

c Do not round to the nearest integer

Site Name: The Kennon Site

Location: Brentwood, Williamson County, Tennessee

SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET

	Factor Categories and Factors	Maximum Value	Value Assigned	
	DRINKING WATER THREAT			
	Likelihood of Release			
1.	Observed Release	550	0	
2.	Potential Release by Overland Flow			
	2a. Containment	10	10	
	2b. Runoff	25	1	
	2c. Distance to Surface Water	25	6	
	2d. Potential to Release by Overland Flow [lines 2a x (2b + 2c)]	500	70	
3.	Potential to Release by Flood			
	3a. Containment (Flood)	10	10	
	3b. Flood Frequency	50	0	
	3c. Potential to Release by Flood (lines 3a x 3b)	500	0	
4.	Potential to Release (lines 2d + 3c, subject to a maximum of 500)	500	70	
5.	Likelihood to Release (higher of lines 1 and 4)	550		70
	Waste Characteristics			
6.	Toxicity/Persistence	a	4.0	
7.	Hazardous Waste Quantity	a	10	
8.	Waste Characteristics	100		2
	Targets			
9.	Nearest Intake	50	0	
10.	Population			
	10a. Level I Concentrations	b	0	
	10b. Level II Concentrations	b	0	
	10c. Potential Contamination	b	0	
	10d. Population (lines 10a + 10b + 10c)	b	5	
11.	Resources	5	0	
12.	Targets (lines 9 + 10d + 11)	b		5
	Drinking Water Threat Score			
13.	Drinking Water Threat Score ([lines 5 x 8 x 12]/82,500, subject to a maximum of 100)	100		0.01

a Maximum value applies to waste characteristics category.

b Maximum value not applicable.

c Do not round to nearest integer.

Site Name: The Kennon Site

Location: Brentwood, Williamson County, Tennessee

SURFACE WATER, OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET
(continued)

	Factor Categories and Factors	Maximum Value	Value Assigned	
HUMAN FOOD CHAIN THREAT				
	Likelihood of Release			
14.	Likelihood of Release (same value as line 5)	550		70
	Waste Characteristics			
15.	Toxicity/Persistence/Bioaccumulation	a	2×10^4	
16.	Hazardous Waste Quantity	a	10	
17.	Waste Characteristics	1,000		18
	Targets			
18.	Food Chain Individual	50	0	
19.	Population			
	19a. Level I Concentrations	b	0	
	19b. Level II Concentrations	b	-	
	19c. Potential Human Food Chain Contamination	b	2	
	19c. Population (lines 19a + 19b + 19c)	b	2	
20.	Targets (lines 18 + 19d)			2
	Human Food Chain Threat Score			
21.	Human Food Chain Threat Score ([lines 14 x 17 x 20]/82,500, subject to a maximum of 100)	100		0.03
ENVIRONMENTAL THREAT				
	Likelihood of Release			
22.	Likelihood of Release (same value as line 5)	550		70
	Waste Characteristics			
23.	Ecosystem Toxicity/Persistence/Bioaccumulation	a	2×10^4	
24.	Hazardous Waste Quantity	a	10	
25.	Waste Characteristics	1,000		18
26.	Sensitive Environments			
	26a. Level I Concentrations	b	0	
	26b. Level II Concentrations	b	0	
	26c. Potential Contamination	b	0	
	26d. Sensitive Environments (lines 26a + 26b + 26c)	b	0	

a Maximum value applies to waste characteristics category.

b Maximum value not applicable.

c Do not round to nearest integer.

Site Name: The Kennon Site

Location: Brentwood, Williamson County, Tennessee

SURFACE WATER, OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET (concluded)

	Factor Categories and Factors	Maximum Value	Value Assigned
	Targets		
27.	Targets (value from line 26d)		0
	Environmental Threat Score		
28.	Environmental Threat Score ([lines 22 x 25 x 27]/82,500, subject to a maximum of 60)	60	0
	SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORE FOR A WATERSHED		
29.	Watershed Score[c] (lines 13 + 21 + 28, subject to a maximum of 100)	100	0.03
	SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORE		
30.	Component Score (S_{OF})[c] (Highest score from line 29 for all watersheds evaluated, subject to a maximum of 100)	100	0.03

a Maximum value applies to waste characteristics category.

b Maximum value not applicable.

c Do not round to the nearest integer.

Site Name: The Kennon Site

Location: Brentwood, Williamson County, Tennessee

SOIL EXPOSURE PATHWAY SCORESHEET

	Factor Categories and Factors	Maximum Value	Value Assigned	
	RESIDENT POPULATION THREAT			
	Likelihood of Exposure			
1.	Likelihood of Exposure	550		550
	Waste Characteristics			
2.	Toxicity	a	10^4	
3.	Hazardous Waste Quantity	a	10	
4.	Waste Characteristics	100		18
	Targets			
5.	Resident Individual	50	0	
6.	Resident Population			
	6a. Level I Concentrations	b	0	
	6b. Level II Concentrations	b	0	
	6c. Resident Population (lines 6a + 6b)	b	0	
7.	Workers	15	0	
8.	Resources	5	0	
9.	Terrestrial Sensitive Environments	c	0	
10.	Targets (lines 5 + 6c + 7 + 8 + 9)	b		0
	Resident Population Threat Score			
11.	Resident Population Threat (Lines 1 x 4 x 10)/82,500	b		0
	NEARBY POPULATION THREAT			
	Likelihood of Exposure			
12.	Attractiveness/Accessibility	100	5	
13.	Area of Contamination	100	8	
14.	Likelihood of Exposure	500		25
	Waste Characteristics			
15.	Toxicity	a	10^4	
16.	Hazardous Waste Quantity	a	10	
17.	Waste Characteristics	100		18

a Maximum value applies to waste characteristics category.

b Maximum value not applicable.

c Do not round to the nearest integer.

Site Name: The Kennon Site

Location: Brentwood, Williamson County, Tennessee

SOIL EXPOSURE PATHWAY SCORESHEET
(concluded)

Factor Categories and Factors	Maximum Value	Value Assigned	
Targets			
18. Nearby Individual	1	0	
19. Population Within 1 Mile	b	.002	
20. Targets (lines 18 + 19)	b		.002
Nearby Population Threat Score			
21. Nearby Population Threat (lines 14 x 17 x 20)	b		0.9
SOIL EXPOSURE PATHWAY SCORE		Nearby Population Threat· (Default Value)	2
22. Soil Exposure Pathway Score[d] (S_s), (lines [11 + 21], subject to a maximum of 100)	100		0.00

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a Maximum value applies to waste characteristics category.

b Maximum value not applicable.

c No specific maximum value applies to the factor. However, pathway score based solely on sensitive environments is limited to maximum of 60.

d Do not round to the nearest integer.

Site Name: The Kennon Site

Location: Brentwood, Williamson County, Tennessee

AIR MIGRATION PATHWAY SCORESHEET

Factor Categories and Factors

	Likelihood of Release	Maximum Value	Value Assigned	
1.	Observed Release	550	0	
2.	Potential to Release			
	2a. Gas Potential to Release	500	500	
	2b. Particulate Potential to Release	500	500	
	2c. Potential to Release (higher of lines 2a and 2b)	500	500	
3.	Likelihood of Release (higher of lines 1 and 2c)	a		500
	Waste Characteristics			
4.	Toxicity/Mobility	a	1	
5.	Hazardous Waste Quantity	a	10	
6.	Waste Characteristics	100		2
	Targets			
7.	Nearest Individual	50	1	
8.	Population			
	8a. Level I Concentrations	b	0	
	8b. Level II Concentrations	b	0	
	8c. Potential Contamination	b	4.81	
	8d. Population (lines 8a + 8b + 8c)	b	4.81	
9.	Resources	5	0	
10.	Sensitive Environments			
	10a. Actual Contamination	c	0	
	10b. Potential Contamination	c	0	
	10c. Sensitive Environments (lines 10a + 10b)	c	0	
11.	Targets (lines 7 + 8d + 9 + 10c)	b		5.81
	Air Migration Pathway Score			
12.	Pathway Score (S_a) [(Lines 3 x 6 x 11)/82,500][d]	100		0.07

a Maximum value applies to waste characteristics category.

b Maximum value not applicable.

c No specific maximum value applies to the factor. However, pathway score based solely on sensitive environments is limited to maximum of 60.

d Do not round to the nearest integer.

SITE INSPECTION WORKSHEETS

CERCLIS IDENTIFICATION NUMBER
TND981472515

SITE LOCATION			
SITE NAME: LEGAL, COMMON, OR DESCRIPTIVE NAME OF SITE Kennon Site			
STREET ADDRESS, ROUTE, OR SPECIFIC LOCATION IDENTIFIER [illegible] Lay Road / Wilson Park			
CITY Brentwood	STATE TN	ZIP CODE	TELEPHONE ( )
COORDINATES: LATITUDE and LONGITUDE 35°57'22" 86°46'27'	TOWNSHIP, RANGE, AND SECTION		

OWNER/OPERATOR IDENTIFICATION					
OWNER Emmett Kennon			OPERATOR SAME		
OWNER ADDRESS 2934 Saco Drive			OPERATOR ADDRESS		
CITY Nashville			CITY		
STATE TN	ZIP CODE 37204	TELEPHONE ( )	STATE	ZIP CODE	TELEPHONE ( )

SITE EVALUATION		
AGENCY/ORGANIZATION Halliburton NUS Corp		
INVESTIGATOR TERESA SAUCIER		
CONTACT LOFTON CAKE		
ADDRESS [illegible] WEST PARK [illegible] BLVD		
CITY STONE MOUNTAIN	STATE GEORGIA	ZIP CODE 30087
TELEPHONE (404) 413 0965		

GENERAL INFORMATION

Site Description and Operational History: Provide a brief description of the site and its operational history. State the site name, owner, operator, type of facility and operations, size of property, active or inactive status, and years of waste generation. Summarize waste treatment, storage, or disposal activities that have or may have occurred at the site; note whether these activities are documented or alleged. Identify all source types and prior spills, floods, or fires. Summarize highlights of the PA and other investigations. Cite references.

The 10-acre site is located on a 150-acre tract of farmland owned by Emmett and Rose Kennon. The site is currently undergoing remediation. Phosphate was mined on the farmland property between 1972 and 1974, and one pit was left unreclaimed. In 1978, this mine pit and four additional trenches were used for the disposal of industrial wastes, consisting of organic solvents, adhesives, and organic fillers from General Adhesives, which at that time was a division of Genesco Inc. (Ref. 4).

Genesco corporate officials learned of the disposal activities in 1985, at which time the Tennessee Department of Environmental and Conservation (TDEC), formerly known as the Tennessee Department of Health and Environment (TDHE), was notified, and a series of investigations and remedial activities were begun under the supervision and direction of TDEC (Ref. 4).

During the initial stage, a silt fence was constructed to prevent contaminated sediment from leaving the property, and an alternative water supply was provided to residents in the area. Soil sampling and geophysical surveys were conducted in the disposal areas, and monitor wells were constructed on site by consultant personnel. Domestic wells and springs were sampled by the TDHE, and the US Geological Survey (USGS) conducted a study of the regional groundwater flow system. In 1986, the city of Brentwood extended the city water lines into this area of Williamson County to provide city water to residents in the surrounding area, with Genesco participating in the funding thereof (Ref. 4).

Geraghty and Miller, Inc. (G&M) was retained by Genesco to collect and analyze all of the existing data and to prepare a plan of investigation of the site. During 1987, that plan was implemented. From the data obtained during the site investigation in 1987, it was concluded that the hydrogeologic system at the site is composed of three basic units. The uppermost unit (the shallow aquifer) includes a granular saprolite zone at the base of the weathering residuum and the weathered upper few feet of the bedrock. This is underlain by the Hermitage Aquitard, which is a confining zone. The Carter's Formation, which is the third unit, underlies both the hydrogeologic systems noted above and is a massive limestone formation (Ref. 4).

The groundwater flow in the shallow aquifer is toward the southwest and is largely controlled by topography. Groundwater contamination was found to be restricted to the shallow aquifer and confined to a relatively small area on the Kennon property immediately adjacent to the disposal area. Based upon the data collected, it was determined that it was unlikely that any contaminants had migrated off of the Kennon property (Ref. 4).

Work plans, investigation reports and remedial design documents were prepared during 1986 to 1990 to address the onsite contaminants and were implemented in 1989 through 1991. The site is being remediated in accordance with TDEC order, No. 86-3013, issued March 5, 1986. A Hazard Evaluation and Remedial Alternatives (HE&RA) study was conducted to identify the media of concern (groundwater, adhesive waste, contaminated soils) and the optimum treatment and disposal alternatives (Ref. 4).

The selected groundwater remedial method was Remedial Alternative 1 of the HE&RA, which was comprised of a subsurface drain. The subsurface collection drain was designed and installed in November 1989 to intercept the flow of groundwater. Intercepted groundwater is removed from the site and treated through the city of Brentwood sewer system at a treatment facility operated by the Metropolitan Government of Nashville and Davidson County. Large mechanical screens were used from June 1990 to September 1991 to separate semi-solid and solid adhesive wastes from the soils. Excavated adhesive wastes were removed from the site and incinerated. The remaining soils were processed through the screens several times prior to the bioremediation phase of the project (Ref. 4).

A treatability study was conducted by G&M at the site in 1990. The study determined that an adapted indigenous aerobic bacteria population was present in the soils, which could be used to convert the residual contamination present in the soils to carbon dioxide. Baseline soil sampling was conducted in 1990 and 1991, and the site was terraced into a series of surface water holding cells in order to promote the bioremediation effort. Soil and groundwater sampling takes place on a scheduled basis, to ensure that bioremediation continues in an effective manner. Bioremediation is anticipated to continue until approximately the year 2002, but closure of the site will not be completed until a comprehensive sampling analysis has been conducted to ensure that the soil and groundwater cleanliness meets the applicable regulations (Ref. 4).

GENERAL INFORMATION (continued)

Site Sketch: Provide a sketch of the site. Indicate all pertinent features of the site and nearby environments including sources of wastes, areas of visible and buried wastes, buildings, residences, access roads, parking areas, fences, fields, drainage patterns, water bodies, vegetation, wells, sensitive environments, and other features.

GENERAL INFORMATION (continued)

Source Descriptions: Describe all sources at the site. Identify source type and relate to waste disposal operations. Provide source dimensions and the best available waste quantity information. Describe the condition of sources and all containment structures. Cite references.

SOURCE TYPES

Landfill: A man-made (by excavation or construction) or natural hole in the ground into which wastes have come to be disposed by backfilling, or by contemporaneous soil deposition with waste disposal.

Surface Impoundment: A natural topographic depression, man-made excavation, or diked area, primarily formed from earthen materials (lined or unlined) and designed to hold an accumulation of liquid wastes, wastes containing free liquids, or sludges not backfilled or otherwise covered; depression may be wet with exposed liquid or dry if deposited liquid has evaporated, volatilized or leached; structures that may be described as lagoon, pond, aeration pit, settling pond, tailings pond, sludge pit; also a surface impoundment that has been covered with soil after the final deposition of waste materials (i.e., buried or backfilled).

Drum: A portable container designed to hold a standard 55-gallon volume of wastes.

Tank and Non-Drum Container: Any device, other than a drum, designed to contain an accumulation of waste that provides structural support and is constructed primarily of fabricated materials (such as wood, concrete, steel, or plastic); any portable or mobile device in which waste is stored or otherwise handled.

Contaminated Soil: An area or volume of soil onto which hazardous substances have been spilled, spread, disposed, or deposited.

Pile: Any non-containerized accumulation above the ground surface of solid, non-flowing wastes; includes open dumps. Some types of waste piles are:

- Chemical Waste Pile: A pile consisting primarily of discarded chemical products, by-products, radioactive wastes, or used or unused feedstocks.
- Scrap Metal or Junk Pile: A pile consisting primarily of scrap metal or discarded durable goods (such as appliances, automobiles, auto parts, batteries, etc.) composed of materials containing hazardous substances.
- Tailings Pile: A pile consisting primarily of any combination of overburden from a mining operation and tailings from a mineral mining, beneficiation, or processing operation.
- Trash Pile: A pile consisting primarily of paper, garbage, or discarded non-durable goods containing hazardous substances.

Land Treatment: Landfarming or other method of waste management in which liquid wastes or sludges are spread over land and tilled, or liquids are injected at shallow depths into soils.

Other: Sources not in categories listed above.

GENERAL INFORMATION (continued)

Source Description: Include description of containment per pathway for ground water (see HRS Table 3-2), surface water (see HRS Table 4-2), and air (see HRS Tables 6-3 and 6-9).

Hazardous Waste Quantity (HWQ) Calculation: SI Tables 1 and 2 (See HRS Tables 2-5, 2-6, and 5-2).

800 drums of adhesives and other volatile organics

Attach additional pages, if necessary

HWQ = 10

SI TABLE 1: HAZARDOUS WASTE QUANTITY (HWQ) SCORES FOR SINGLE SOURCE SITES AND FORMULAS FOR MULTIPLE SOURCE SITES

		Single Source Sites (assigned HWQ scores)	
(Column 1) TIER	(Column 2) Source Type	(Column 3) HWQ = 10	(Column 4) HWQ = 100
A Hazardous Constituent Quantity	N/A	HWQ = 1 if Hazardous Constituent Quantity data are complete HWQ = 10 if Hazardous Constituent Quantity data are not complete	>100 to 10,000 lbs
B Hazardous Wastestream Quantity	N/A	≤ 500,000 lbs	>500,000 to 50 million lbs
C Volume	Landfill	≤ 6.75 million ft^3 ≤ 250,000 yd^3	>6.75 million to 675 million ft^3 >250,000 to 25 million yd^3
	Surface impoundment	≤6,750 ft^3 ≤250 yd^3	>6,750 to 675,000 ft^3 >250 to 25,000 yd^3
	Drums	≤1,000 drums	>1,000 to 100,000 drums
	Tanks and non-drum containers	≤50,000 gallons	>50,000 to 5 million gallons
	Contaminated soil	≤6.75 million ft^3 ≤250,000 yd^3	>6.75 million to 675 million ft^3 >250,000 to 25 million yd^3
	Pile	≤6,750 ft^3 ≤250 yd^3	>6,750 to 675,000 ft^3 >250 to 25,000 yd^3
	Other	≤6,750 ft^3 ≤250 yd^3	>6,750 to 675,000 ft^3 >250 to 25,000 yd^3
D Area	Landfill	≤340,000 ft^2 ≤7.8 acres	>340,000 to 34 million ft^2 >7.8 to 780 acres
	Surface impoundment	≤1,300 ft^2 ≤0.029 acres	>1,300 to 130,000 ft^2 >0.029 to 2.9 acres
	Contaminated soil	≤3.4 million ft^2 ≤78 acres	> 3.4 million to 340 million ft^2 > 78 to 7,800 acres
	Pile	≤1,300 ft^2 ≤0.029 acres	>1,300 to 130,000 ft^2 >0.029 to 2.9 acres
	Land treatment	≤27,000 ft^2 ≤0.62 acres	>27,000 to 2.7 million ft^2 >0.62 to 62 acres

1 ton = 2,000 pounds = 1 cubic yard = 4 drums = 200 gallons

TABLE 1 (CONTINUED)

Single Source Sites (assigned HWQ scores)		Multiple Source Sites		
(Column 5) HWQ = 10,000	(Column 6) HWQ = 1,000,000	(Column 7) Divisors for Assigning Source WQ Values	(Column 2) Source Type	(Column 1) TIER
>10,000 to 1 million lbs	> 1 million lbs	lbs ÷ 1	N/A	A Hazardous Constituent Quantity
>50 million to 5 billion lbs	> 5 billion lbs	lbs ÷ 5,000	N/A	B Hazardous Wastestream Quantity
>675 million to 67.5 billion ft^3 >25 million to 2.5 billion yd^3	> 67.5 billion ft^3 > 2.5 billion yd^3	ft^3 ÷ 67,500 yd^3 ÷ 2,500	Landfill	C Volume
>675,000 to 67.5 million ft^3 >25,000 to 2.5 million yd^3	> 67.5 million ft^3 > 2.5 million yd^3	ft^3 ÷ 67.5 yd^3 ÷ 2.5	Surface Impoundment	
>100,000 to 10 million drums	> 10 million drums	drums ÷ 10	Drums	
>5 million to 500 million gallons	> 500 million gallons	gallons ÷ 500	Tanks and non-drum containers	
>675 million to 67.5 billion ft^3 >25 million to 2.5 billion yd^3	> 67.5 billion ft^3 > 2.5 billion yd^3	ft^3 ÷ 67,500 yd^3 ÷ 2,500	Contaminated Soil	
>675,000 to 67.5 million ft^3 >25,000 to 2.5 million yd^3	> 67.5 million ft^3 > 2.5 million yd^3	ft^3 ÷ 67.5 yd^3 ÷ 2.5	Pile	
>675,000 to 67.5 million ft^3 >25,000 to 2.5 million yd^3	> 67.5 million ft^3 > 2.5 million yd^3	ft^3 ÷ 67.5 yd^3 ÷ 2.5	Other	
>34 million to 3.4 billion ft^2 >780 to 78,000 acres	> 3.4 billion ft^2 >78,000 acres	ft^2 ÷ 3,400 acres ÷ 0.078	Landfill	D Area
>130,000 to 13 million ft^2 >2.9 to 290 acres	> 13 million ft^2 > 290 acres	ft^2 ÷ 13 acres ÷ 0.00029	Surface Impoundment	
> 340 million to 34 billion ft^2 > 7,800 to 780,000 acres	> 34 billion ft^2 > 780,000 acres	ft^2 ÷ 34,000 acres ÷ 0.78	Contaminated Soil	
> 130,000 to 13 million ft^2 > 2.9 to 290 acres	> 13 million ft^2 > 290 acres	ft^2 ÷ 13 acres ÷ 0.00029	Pile	
>2.7 million to 270 million ft^2 >62 to 6,200 acres	> 270 million ft^2 > 6,200 acres	ft^2 ÷ 270 acres ÷ 0.0062	Land Treatment	

1 ton = 2,000 pounds = 1 cubic yard = 4 drums = 200 gallons

HAZARDOUS WASTE QUANTITY (HWQ) CALCULATION

For each migration pathway, evaluate HWQ associated with sources that are available (i.e., incompletely contained) to migrate to that pathway. (Note: If *Actual Contamination Targets* exist for ground water, surface water, or air migration pathways, assign the calculated HWQ score or 100, whichever is greater, as the HWQ score for that pathway.) For each source, evaluate HWQ for one or more of the four tiers (SI Table 1; HRS Table 2-5) for which data exist: constituent quantity, wastestream quantity, source volume, and source area. Select the tier that gives the highest value as the source HWQ. Select the source volume HWQ rather than source area HWQ if data for both tiers are available.

Column 1 of SI Table 1 indicates the quantity tier. Column 2 lists source types for the four tiers. Columns 3, 4, 5, and 6 provide ranges of waste amount for sites with only one source, corresponding to HWQ scores at the tops of the columns. Column 7 provides formulas to obtain source waste quantity values at sites with multiple sources.

1. Identify each source type.
2. Examine all waste quantity data available for each source. Record constituent quantity and waste stream mass or volume. Record dimensions of each source.
3. Convert source measurements to appropriate units for each tier to be evaluated.
4. For each source, use the formulas in the last column of SI Table 1 to determine the waste quantity value for each tier that can be evaluated. Use the waste quantity value obtained from the highest tier as the quantity value for the source.
5. Sum the values assigned to each source to determine the total site waste quantity.
6. Assign HWQ score from SI Table 2 (HRS Table 2-6).

Note these exceptions to evaluate soil exposure pathway HWQ (see HRS Table 5-2):

- The divisor for the area (square feet) of a landfill is 34,000.
- The divisor for the area (square feet) of a pile is 34.
- Wet surface impoundments and tanks and non-drum containers are the only sources for which volume measurements are evaluated for the soil exposure pathway.

SI TABLE 2: HWQ SCORES FOR SITES

Site WQ Total	HWQ Score
0	0
1[a] to 100	1[b]
> 100 to 10,000	100
> 10,000 to 1 million	10,000
> 1 million	1,000,000

[a] If the WQ total is between 0 and 1, round it to 1.
[b] If the hazardous constituent quantity data are not complete, assign the score of 10.

SI TABLE 3: WASTE CHARACTERIZATION WORKSHEET

Site Name: Cannon Site

References: 1, 4

Sources:

1. 800 Drums
2.
3.
4.
5.
6.
7.
8.
9.

SOURCE	HAZARDOUS SUBSTANCE	TOXICITY	GROUND WATER PATHWAY		SURFACE WATER PATHWAY											AIR PATHWAY
					OVERLAND/FLOOD MIGRATION							GROUND WATER TO SURFACE WATER				
			GW Mobility (HRS Table 3-8)	Tox/ Mobility Value (HRS Table 3-9)	Per (HRS Table 4-10 and 4-11)	Tox/Per Value (HRS Table 4-12)	Bioac Pot. (HRS Table 4-15)	Tox/ Pers/ Bioac Value (HRS Table 4-16)	Ecotox (HRS Table 4-19)	Ecotox/ Pers (HRS Table 4-20)	Ecotox/ Pers/ Bioacc Value (HRS Table 4-21)	Tox/ Mob/ Pers Value (HRS Table 4-26)	Tox/ Mob/ Pers/ Bioacc Value (HRS Table 4-26)	Ecotox/ Mob/ Pers Value (HRS Table 4-28)	Ecotox/ Mob/ Per/ Bioacc Value (HRS Table 4-28)	AIR/ GAS Mobility
1	ACETONE	10	1.0	10	0.4	4.0	0.5	2.0	100	40	20					1.0
1	ETHYL ACETATE	1.0	1.0	1.0	0.4	0.4	0.5	0.2	1	0.4	0.2					1.0
1	Hexane	10	1.0	10	0.4	40	500	2×10^4	100	40	2×10^4					1.0
1	Methylene Chloride	10	1.0	10	0.4	4.0	5	20	1	0.4	2.0					1.0
1	MEK	10	1.0	10	0.4	4.0	0.5	2.0	1	0.4	0.2					1.0
1	TOLUENE	10	1.0	10	0.4	4.0	50	200	100	40	2×10^3					1.0
1	111 trichloroethane	10	1.0	10	0.4	4.0	5.0	20	10	4.0	20					1.0
1	Trichloroethylene	10	1.0	10	0.4	4.0	50	200	100	40	2×10^3					1.0

Ground Water Observed Release Substances Summary Table

On SI Table 4, list the hazardous substances associated with the site detected in ground water samples for that aquifer. Include only those substances directly observed or with concentrations significantly greater than background levels. Obtain toxicity values from the Superfund Chemical Data Matrix (SCDM). Assign mobility a value of 1 for all observed release substances regardless of the aquifer being evaluated. For each substance, multiply the toxicity by the mobility to obtain the toxicity/mobility factor value; enter the highest toxicity/mobility value for the aquifer in the space provided.

Ground Water Actual Contamination Targets Summary Table

If there is an observed release at a drinking water well, enter each hazardous substance meeting the requirements for an observed release by well and sample ID on SI Table 5 and record the detected concentration. Obtain benchmark, cancer risk, and reference dose concentrations from SCDM. For MCL and MCLG benchmarks, determine the highest percentage of benchmark obtained for any substance. For cancer risk and reference dose, sum the percentages for the substances listed. If benchmark, cancer risk, or reference dose concentrations are not available for a particular substance, enter N/A for the percentage. If the highest benchmark percentage or the percentage sum calculated for cancer risk or reference dose equals or exceeds 100%, evaluate the population using the well as a Level I target. If these percentages are less than 100% or all are N/A, evaluate the population using the well as a Level II target for that aquifer.

SI TABLE 4: GROUND WATER OBSERVED RELEASE SUBSTANCES (BY AQUIFER)

Sample ID	Hazardous Substance	Bckgrd. Conc.	Toxicity/ Mobility	References
		Highest Toxicity/Mobility		

SI TABLE 5: GROUND WATER ACTUAL CONTAMINATION TARGETS

Well ID: ______________________ Level I _____ Level II _____ Population Served __________ References __________

Sample ID	Hazardous Substance	Conc. (µg/L)	Benchmark Conc. (MCL or MCLG)	% of Benchmark	Cancer Risk Conc.	% of Cancer Risk Conc.	RfD	% of RfD
			Highest Percent		Sum of Percents		Sum of Percents	

Well ID: ______________________ Level I _____ Level II _____ Population Served __________ References __________

Sample ID	Hazardous Substance	Conc. (µg/L)	Benchmark Conc. (MCL or MCLG)	% of Benchmark	Cancer Risk Conc.	% of Cancer Risk Conc.	RfD	% of RfD
			Highest Percent		Sum of Percents		Sum of Percents	

GROUND WATER PATHWAY
GROUND WATER USE DESCRIPTION

Describe Ground Water Use within 4 Miles of the Site:
Describe generalized stratigraphy, aquifers, municipal and private wells

The city of Brentwood supplies potable water to the residents in the area of the Kennon site. As previously stated, some residents were using private wells as their water source but since work began at this site, water lines have been installed (Ref 4). The city of Brentwood obtains water from Metro Nashville and Harpeth Valley Utilities. Both systems obtain water from intakes in the Cumberland River (Ref 5)

Show Calculations of Ground Water Drinking Water Populations for each Aquifer:
Provide apportionment calculations for blended supply systems.
County average number of persons per household: ________ Reference ________

GROUND WATER PATHWAY WORKSHEET

LIKELIHOOD OF RELEASE	Score	Data Type	Refs
1. OBSERVED RELEASE: If sampling data or direct observation support a release to the aquifer, assign a score of 550. Record observed release substances on SI Table 4.	550		
2. POTENTIAL TO RELEASE: Depth to aquifer: 30 feet. If sampling data do not support a release to the aquifer, and the site is in karst terrain or the depth to aquifer is 70 feet or less, assign a score of 500; otherwise, assign a score of 340. Optionally, evaluate potential to release according to HRS Section 3.	0	H	1
LR =	550		

TARGETS	Score	Data Type	Refs
Are any wells part of a blended system? Yes____ No X If yes, attach a page to show apportionment calculations. 3. ACTUAL CONTAMINATION TARGETS: If analytical evidence *indicates that any target drinking water well for the aquifer has been* exposed to a hazardous substance from the site, evaluate the factor score for the number of people served (SI Table 5). Level I: ______ people x 10 = ______ Level II: ______ people x 1 = ______ **Total =**	0	H	1,4,5
4. POTENTIAL CONTAMINATION TARGETS: Determine the number *of people served by drinking water wells for the aquifer or overlying* aquifers that are not exposed to a hazardous substance from the site; record the population for each distance category in SI Table 6a or 6b. Sum the population values and multiply by 0.1.	0	H	1,4,5
5. NEAREST WELL: Assign a score of 50 for any Level I Actual *Contamination Targets for the aquifer or overlying aquifer.* Assign a score of 45 if there are Level II targets but no Level I targets. If no Actual Contamination Targets exist, assign the Nearest Well score *from SI Table 6a or 6b.* If no drinking water wells exist within 4 miles, assign 0.	0	H	3,5
6. WELLHEAD PROTECTION AREA (WHPA): If any source lies within or above a WHPA for the aquifer, or if a ground water observed release has occurred within a WHPA, assign a score of 20; assign 5 if neither condition applies but a WHPA is within 4 miles; otherwise assign 0.	0	H	4,5
7. RESOURCES: Assign a score of 5 if one or more ground water resource applies; assign 0 if none applies. • Irrigation (5 acre minimum) of commercial food crops or commercial forage crops • Watering of commercial livestock • Ingredient in commercial food preparation • Supply for commercial aquaculture • Supply for a major or designated water recreation area, excluding drinking water use	0	H	4,5
Sum of Targets T=	0		

Pot. to release

A [illegible] 10
B Net precipitation 3
C Depth to aquifer 3
D Travel time 35

[illegible]

SI TABLE 6 (From HRS TABLE 3-12): VALUES FOR POTENTIAL CONTAMINATION GROUND WATER TARGET POPULATIONS

SI Table 6a: Other Than Karst Aquifers

Distance from Site	Pop.	Nearest Well (choose highest)	Population Served by Wells within Distance Category: 1 to 10	11 to 30	31 to 100	101 to 300	301 to 1000	1001 to 3000	3001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	1,000,000 to 3,000,000	Pop. Value	Ref.
0 to $\frac{1}{4}$ mile	0	20	4	17	53	164	522	1,633	5,214	16,325	52,137	163,246	521,360	1,632,455	0	0.5
> $\frac{1}{4}$ to $\frac{1}{2}$ mile	0	18	2	11	33	102	324	1,013	3,233	10,122	32,325	101,213	323,243	1,012,122	0	
> $\frac{1}{2}$ to 1 mile	0	9	1	5	17	52	167	523	1,669	5,224	16,684	52,239	166,835	522,385	0	
> 1 to 2 miles	0	5	0.7	3	10	30	94	294	939	2,939	9,385	29,384	93,845	293,842	0	
> 2 to 3 miles	0	3	0.5	2	7	21	68	212	678	2,122	6,778	21,222	67,777	212,219	0	
>3 to 4 miles	0	2	0.3	1	4	13	42	131	417	1,306	4,171	13,060	41,709	130,596	0	

Nearest Well = 0

Sum = 0

SI TABLE 6 (From HRS TABLE 3-12): VALUES FOR POTENTIAL CONTAMINATION GROUND WATER TARGET POPULATIONS (continued)

SI Table 6b: Karst Aquifers

Distance from Site	Pop.	Nearest Well (choose highest)	Population Served by Wells within Distance Category												Pop. Value	Ref.
			1 to 10	11 to 30	31 to 100	101 to 300	301 to 1000	1001 to 3000	3001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	1,000,000 to 3,000,000		
0 to $\frac{1}{4}$ mile		20	4	17	53	164	522	1,633	5,214	16,325	52,137	163,246	521,360	1,632,455		
> $\frac{1}{4}$ to $\frac{1}{2}$ mile		20	2	11	33	102	324	1,013	3,233	10,122	32,325	101,213	323,243	1,012,122		
> $\frac{1}{2}$ to 1 mile		20	2	9	26	82	261	817	2,607	8,163	26,068	81,623	260,680	816,227		
> 1 to 2 miles		20	2	9	26	82	261	817	2,607	8,163	26,068	81,623	260,680	816,227		
> 2 to 3 miles		20	2	9	26	82	261	817	2,607	8,163	26,068	81,623	260,680	816,227		
>3 to 4 miles		20	2	9	26	82	261	817	2,607	8,163	26,068	81,623	260,680	816,227		

Nearest Well =

Sum =

GROUND WATER PATHWAY WORKSHEET (concluded)

WASTE CHARACTERISTICS	Score	Data Type	Does not Apply
8. If any Actual Contamination Targets exist for the aquifer or overlying aquifers, assign the calculated hazardous waste quantity score or a score of 100, whichever is greater; if no Actual Contamination Targets exist, assign the hazardous waste quantity score calculated for sources available to migrate to ground water.	10	H	
9. Assign the highest ground water toxicity/mobility value from SI Table 3 or 4.	10	H	
10. Multiply the ground water toxicity/mobility and hazardous waste quantity scores. Assign the Waste Characteristics score from the table below: *(from HRS Table 2-7)*	3		

Product	WC Score
0	0
>0 to <10	1
10 to <100	2
100 to <1,000	3
1,000 to < 10,000	6
10,000 to <1E + 05	10
1E + 05 to <1E + 06	18
1E + 06 to <1E + 07	32
1E + 07 to <1E + 08	56
1E + 08 or greater	100

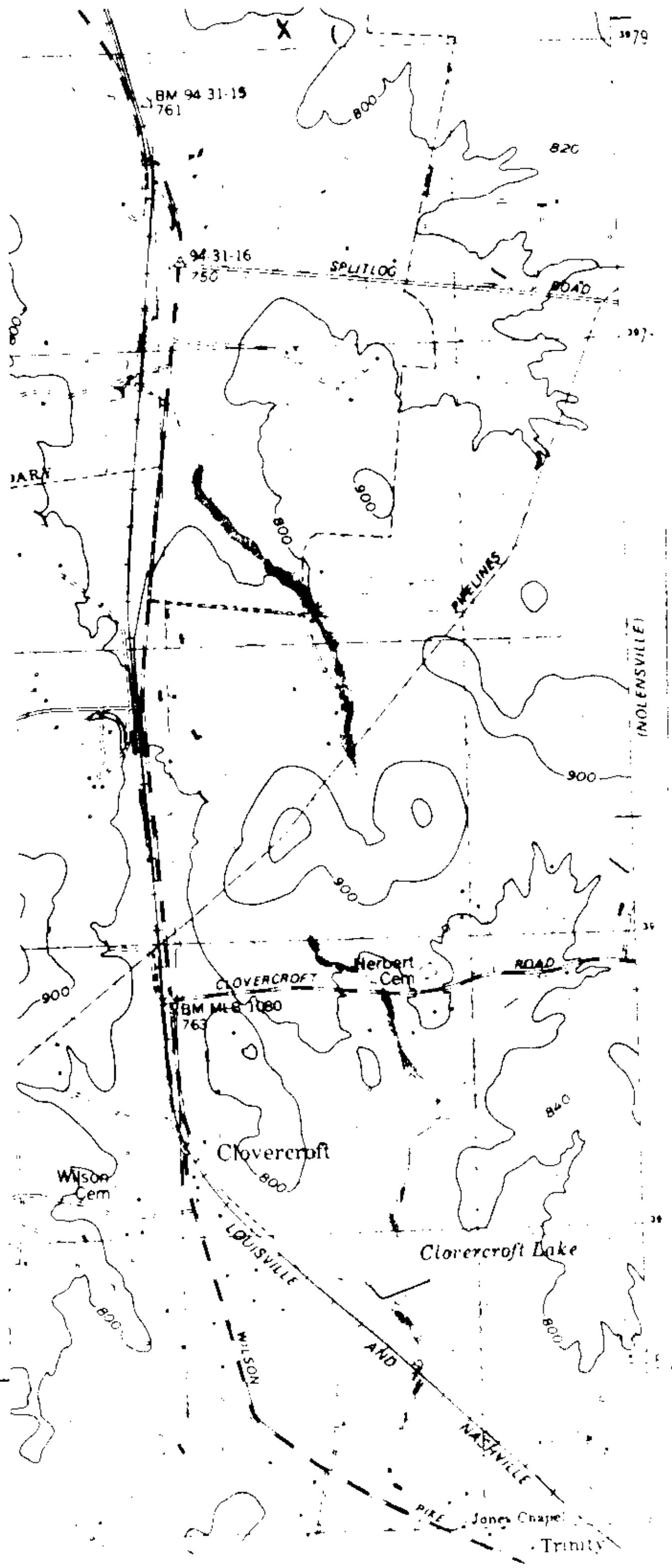
WC = 3

Multiply LR by T and by WC. Divide the product by 82,500 to obtain the ground water pathway score for each aquifer. Select the highest aquifer score. If the pathway score is greater than 100, assign 100.

GROUND WATER PATHWAY SCORE: $\frac{LR \times T \times WC}{82,500}$ 0 (Maximum of 100)

SURFACE WATER PATHWAY

Sketch of the Surface Water Migration Route:
Label all surface water bodies. Include runoff route and drainage direction, probable point of entry, and 15-mile target distance limit. Mark sample locations, intakes, fisheries, and sensitive environments. Indicate flow directions, tidal influence, and rate.



SURFACE WATER PATHWAY

Surface Water Observed Release Substances Summary Table

On SI Table 7, list the hazardous substances detected in surface water samples for the watershed, which can be attributed to the site. Include only those substances in observed releases (direct observation) or with concentration levels significantly above background levels. Obtain toxicity, persistence, bioaccumulation potential, and ecotoxicity values from SCDM. Enter the highest toxicity/persistence, toxicity/persistence/bioaccumulation, and ecotoxicity/persistence/ecobioaccumulation values in the spaces provided.

- TP = Toxicity x Persistence
- TPB = TP x bioaccumulation
- ETPB = EP x bioaccumulation (EP = ecotoxicity x persistence)

Drinking Water Actual Contamination Targets Summary Table

For an observed release at or beyond a drinking water intake, on SI Table 8 enter each hazardous substance by sample ID and the detected concentration. For surface water sediment samples detecting a hazardous substance at or beyond an intake, evaluate the intake as Level II contamination. Obtain benchmark, cancer risk, and reference dose concentrations for each substance from SCDM. For MCL and MCLG benchmarks, determine the highest percentage of benchmark obtained for any substance. For cancer risk and reference dose, sum the percentages of the substances listed. If benchmark, cancer risk, or reference dose concentrations are not available for a particular substance, enter N/A for the percentage. If the highest benchmark percentage or the percentage sum calculated for cancer risk or reference dose equals or exceeds 100%, evaluate the population served by the intake as a Level I target. If the percentages are less than 100% or all are N/A, evaluate the population served by the intake as a Level II target.

SI TABLE 7: SURFACE WATER OBSERVED RELEASE SUBSTANCES

Sample ID	and concentrations Hazardous Substance	Bckgrd. Conc.	Toxicity/ Persistence	Toxicity/ Persis./ Bioaccum	Ecotoxicity/ Persis/ Ecobioaccum	References
		Highest Values				

SI TABLE 8: SURFACE WATER DRINKING WATER ACTUAL CONTAMINATION TARGETS

Intake ID: ____________ Sample Type ____________________ Level I ______ Level II _____ Population Served _______References__________

Sample ID	Hazardous Substance	Conc. (µg/L)	Benchmark Conc. (MCL or MCLG)	% of Benchmark	Cancer Risk Conc.	% of Cancer Risk Conc.	RfD	% of RfD
			Highest Percent		Sum of Percents		Sum of Percents	

Intake ID: ____________ Sample Type ____________________ Level I ______ Level II _____ Population Served _______References__________

Sample ID	Hazardous Substance	Conc. (µg/L)	Benchmark Conc. (MCL or MCLG)	% of Benchmark	Cancer Risk Conc.	% of Cancer Risk Conc.	RfD	% of RfD
			Highest Percent		Sum of Percents		Sum of Percents	

SURFACE WATER PATHWAY
LIKELIHOOD OF RELEASE AND DRINKING WATER THREAT WORKSHEET

LIKELIHOOD OF RELEASE– OVERLAND/FLOOD MIGRATION	Score	Data Type	Refs
1. OBSERVED RELEASE: If sampling data or direct observation support a release to surface water in the watershed, assign a score of 550. Record observed release substances on SI Table 7.	0	H	1, 4
2. POTENTIAL TO RELEASE: Distance to surface water: ____(feet) If sampling data do not support a release to surface water in the watershed, use the table below to assign a score from the table below based on distance to surface water and flood frequency. Optionally, evaluate surface water potential to release according to HRS Section 4.1.2.1.2	70	H	1, 2
LR =	70		

Distance to surface water <2500 feet	500
Distance to surface water >2500 feet, and:	
Site in annual or 10-yr floodplain	500
Site in 100-yr floodplain	400
Site in 500-yr floodplain	300
Site outside 500-yr floodplain	100

LIKELIHOOD OF RELEASE GROUND WATER TO SURFACE WATER MIGRATION	Score	Data Type	Refs
1. OBSERVED RELEASE: If sampling data or direct observation support a release to surface water in the watershed, assign a score of 550. *Record observed release substances on SI Table 7.* NOTE: Evaluate ground water to surface water migration only for a surface water body that meets all of the following conditions: 1) A portion of the surface water is within 1 mile of site sources having a containment factor greater than 0. 2) No aquifer discontinuity is established between the source and the above portion of the surface water body. 3) The top of the uppermost aquifer is at or above the bottom of the surface water. Elevation of top of uppermost aquifer ____________ Elevation of bottom of surface water body ____________			
2. POTENTIAL TO RELEASE: Use the ground water potential to release. Optionally, evaluate surface water potential to release according to HRS Section 3.1.2.			
LR =			

Pot to release by overland

containment 10

runoff 1

70

Pot to release by flood

10

flood frequency 0

0

SURFACE WATER PATHWAY
LIKELIHOOD OF RELEASE AND DRINKING WATER THREAT WORKSHEET (CONTINUED)

DRINKING WATER THREAT TARGETS	Score	Data Type	Refs
Record the water body type, flow, and number of people served by each drinking water intake within the target distance limit in the watershed. If there is no drinking water intake within the target distance limit, assign 0 to factors 3, 4, and 5. Intake Name / Water Body Type / Flow / People Served ____ ____ ____ ____ ____ ____ ____ ____ ____ ____ ____ ____ Are any intakes part of a blended system? Yes ____ No ____ If yes, attach a page to show apportionment calculations. 3. ACTUAL CONTAMINATION TARGETS: If analytical evidence indicates a drinking water intake has been exposed to a hazardous substance from the site, list the intake name and evaluate the factor score for the drinking water population (SI Table 8). __________ , __________ Level I: ____ people x 10 = ____ Level II: ____ people x 1 = ____ Total =	0	H	1,4,5
4. POTENTIAL CONTAMINATION TARGETS: Determine the number of people served by drinking water intakes for the watershed that have not been exposed to a hazardous substance from the site. Assign the population values from SI Table 9. Sum the values and multiply by 0.1.	0	H	1,4,5
5. NEAREST INTAKE: Assign a score of 50 for any Level I Actual Contamination Drinking Water Targets for the watershed. Assign a score of 45 if there are Level II targets for the watershed, but no Level I targets. If no Actual Contamination Drinking Water Targets exist, assign a score for the intake nearest the PPE from SI Table 9. If no drinking water intakes exist, assign 0.	0	H	1,4,5
6. RESOURCES: Assign a score of 5 if one or more surface water resource applies; assign 0 if none applies. • Irrigation (5 acre minimum) of commercial food crops or commercial forage crops • Watering of commercial livestock • Ingredient in commercial food preparation • Major or designated water recreation area, excluding drinking water use	5	H	1,4,5

SUM OF TARGETS T= 5

SI TABLE 9 (From HRS Table 4-14): DILUTION-WEIGHTED POPULATION VALUES FOR POTENTIAL CONTAMINATION FOR SURFACE WATER MIGRATION PATHWAY

Type of Surface Water Body	Pop.	Nearest Intake	Number of people: 0	1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	Pop. Value
Minimal Stream (<10 cfs)		20	0	4	17	53	164	522	1,633	5,214	16,325	
Small to moderate stream (10 to 100 cfs)		2	0	0.4	2	5	16	52	163	521	1,633	
Moderate to large stream (> 100 to 1,000 cfs)		0	0	0.04	0.2	0.5	2	5	16	52	163	
Large Stream to river (>1,000 to 10,000 cfs)		0	0	0.004	0.02	0.05	0.2	0.5	2	5	16	
Large River (> 10,000 to 100,000 cfs)		0	0	0	0.002	0.005	0.02	0.05	0.2	0.5	16	
Very Large River (>100,000 cfs)		0	0	0	0	0.001	0.002	0.005	0.02	0.05	0.2	
Shallow ocean zone or Great Lake (depth < 20 feet)		0	0	0	0.002	0.005	0.02	0.05	0.2	0.5	2	
Moderate ocean zone or Great Lake (Depth 20 to 200 feet)		0	0	0	0	0.001	0.002	0.005	0.02	0.05	0.2	
Deep ocean zone or Great Lake (depth > 200 feet)		0	0	0	0	0	0.001	0.003	0.008	0.03	0.08	
3-mile mixing zone in quiet flowing river (≥ 10 cfs)		10	0	2	9	26	82	261	817	2,607	8,163	

Nearest Intake = ______

Sum = ______

References ______

SURFACE WATER PATHWAY

Human Food Chain Actual Contamination Targets Summary Table

On SI Table 10, list the hazardous substances detected in sediment, aqueous, sessile benthic organism tissue, or fish tissue samples (taken from fish caught within the boundaries of the observed release) by sample ID and concentration. Evaluate fisheries within the boundaries of observed releases detected by sediment or aqueous samples as Level II, if at least one observed release substance has a bioaccumulation potential factor value of 500 or greater (see SI Table 7). Obtain benchmark, cancer risk, and reference dose concentrations from SCDM. For FDAAL benchmarks, determine the highest percentage of benchmark obtained for any substance. For cancer risk and reference dose, sum the percentages for the substances listed. If benchmark, cancer risk, or reference dose concentrations are not available for a particular substance, enter N/A for the percentage. If the highest benchmark percentage sum calculated for cancer risk or reference dose equals or exceeds 100%, evaluate this portion of the fishery as subject to Level I concentrations. If the percentages are less than 100% or all are N/A, evaluate the fishery as a Level II target.

Sensitive Environment Actual Contamination Targets Summary Table

On SI Table 11, list each hazardous substance detected in aqueous or sediment samples at or beyond wetlands or a surface water sensitive environment by sample ID. Record the concentration. If contaminated sediments or tissues are detected at or beyond a sensitive environment, evaluate the sensitive environment as Level II. Obtain benchmark concentrations from SCDM. For AWQC/AALAC benchmarks, determine the highest percentage of benchmark of the substances detected in aqueous samples. If benchmark concentrations are not available for a particular substance, enter N/A for the percentage. If the highest benchmark percentage equals or exceeds 100%, evaluate that part of the sensitive environment subject to Level I concentrations. If the percentage is less than 100%, or all are N/A, evaluate the sensitive environment as Level II.

SI TABLE 10: HUMAN FOOD CHAIN ACTUAL CONTAMINATION TARGETS FOR WATERSHED

Fishery ID: ________________ Sample Type ____________ Level I _____ Level II _____ References ______________

Sample ID	Hazardous Substance	Conc. (mg/kg)	Benchmark Concentration (FDAAL)	% of Benchmark	Cancer Risk Concentration.	% of Cancer Risk Concentration	RfD	% of RfD
			Highest Percent		Sum of Percents		Sum of Percents	

SI TABLE 11: SENSITIVE ENVIRONMENT ACTUAL CONTAMINATION TARGETS FOR WATERSHED

Environment ID: ______________ Sample Type ____________ Level I _____ Level II _____ Environment Value __________

Sample ID	Hazardous Substance	Conc.. (μg/L)	Benchmark Concentration (AWQC or AALAC)	% of Benchmark	References
			,Highest Percent		

Environment ID: ______________ Sample Type ____________ Level I _____ Level II _____ Environment Value __________

Sample ID	Hazardous Substance	Conc.. (μg/L)	Benchmark Concentration (AWQC or AALAC)	% of Benchmark	References
			Highest Percent		

SURFACE WATER PATHWAY (continued)
HUMAN FOOD CHAIN THREAT WORKSHEET

HUMAN FOOD CHAIN THREAT TARGETS	Score	Data Type	Refs

Record the water body type and flow for each fishery within the target distance limit. If there is no fishery within the target distance limit, assign a score of 0 at the bottom of this page.

Fishery Name Little Harpeth River Water Body______ Flow______cfs

Species______ Production______lbs/yr
Species______ Production______lbs/yr

Fishery Name______ Water Body Clover croft Lake Flow______cfs

Species______ Production______lbs/yr
Species______ Production______lbs/yr

Fishery Name______ Water Body______ Flow______cfs

Species______ Production______lbs/yr
Species______ Production______lbs/yr

FOOD CHAIN INDIVIDUAL

7. ACTUAL CONTAMINATION FISHERIES:

If analytical evidence indicates that a fishery has been exposed to a hazardous substance with a bioaccumulation factor greater than or equal to 500 (SI Table 10), assign a score of 50 if there is a *Level I fishery. Assign 45 if there is a Level II fishery, but no Level* I fishery.

8. POTENTIAL CONTAMINATION FISHERIES:

If there is a release of a substance with a bioaccumulation factor greater than or equal to 500 to a watershed containing fisheries within the target distance limit, but there are no Level I or Level II fisheries, assign a score of 20.

If there is no observed release to the watershed, assign a value for potential contamination fisheries from the table below using the lowest flow at all fisheries within the target distance limit:

Lowest Flow	FCI Value
<10 cfs	20
10 to 100 cfs	2
>100 cfs, coastal tidal waters, oceans, or Great Lakes	0
3-mile mixing zone in quiet flowing river	10

	Score	Data Type	Refs
FCI Value =	2	H	7
SUM OF TARGETS T =	2		

SURFACE WATER PATHWAY (continued)
ENVIRONMENTAL THREAT WORKSHEET

When measuring length of wetlands that are located on both sides of a surface water body, sum both frontage lengths. For a sensitive environment that is more than one type, assign a value for each type.

ENVIRONMENTAL THREAT TARGETS	Score	Data Type	Refs
Record the water body type and flow for each surface water sensitive environment within the target distance (see SI Table 12). If there is no sensitive environment within the target distance limit, assign a score of 0 at the bottom of the page.			

Environment Name	Water Body Type	Flow
		cfs
		cfs
		cfs
		cfs
		cfs

9. ACTUAL CONTAMINATION SENSITIVE ENVIRONMENTS: If sampling data or direct observation indicate any sensitive environment has been exposed to a hazardous substance from the site, record this information on SI Table 11, and assign a factor value for the environment (SI Tables 13 and 14).

Environment Name	Environment Type and Value (SI Tables 13 & 14)	Multiplier (10 for Level I, 1 for Level II)	Product
		x =	
		x =	
		x =	
		x =	

Sum = 0 | H | 6

10. POTENTIAL CONTAMINATION SENSITIVE ENVIRONMENTS:

Flow	Dilution Weight (SI Table 12)	Environment Type and Value (SI Tables 13 & 14)	Pot. Cont.	Product
cfs	x	x	0.1 =	
cfs	x	x	0.1 =	
cfs	x	x	0.1 =	
cfs	x	x	0.1 =	
cfs	x	x	0.1 =	

Sum = 0 | H | 2

T = 0

SI TABLE 12 (HRS Table 4-13): SURFACE WATER DILUTION WEIGHTS

Type of Surface Water Body		Assigned Dilution Weight
Descriptor	Flow Characteristics	
Minimal stream	< 10 cfs	1
Small to moderate stream	10 to 100 cfs	0.1
Moderate to large stream	> 100 to 1,000 cfs	0.01
Large stream to river	> 1,000 to 10,000 cfs	0.001
Large river	> 10,000 to 100,000 cfs	0.0001
Very large river	> 100,000 cfs	0.00001
Coastal tidal waters	Flow not applicable; depth not applicable	~~0.001~~ 0.0001
Shallow ocean zone or Great Lake	Flow not applicable; depth less than 20 feet	~~0.001~~ 0.0001
Moderate depth ocean zone or Great Lake	Flow not applicable; depth 20 to 200 feet	~~0.0001~~ 0.00001
Deep ocean zone or Great Lake	Flow not applicable; depth greater than 200 feet	0.000005
3-mile mixing zone in quiet flowing river	10 cfs or greater	0.5

SI TABLE 13 (HRS TABLE 4-23): SURFACE WATER AND AIR SENSITIVE ENVIRONMENTS VALUES

SENSITIVE ENVIRONMENT	*ASSIGNED VALUE*
Critical habitat for Federal designated endangered or threatened species Marine Sanctuary National Park Designated Federal Wilderness Area Ecologically important areas identified under the Coastal Zone Wilderness Act Sensitive Areas identified under the National Estuary Program or Near Coastal Water Program of the Clean Water Act Critical Areas identified under the Clean Lakes Program of the Clean Water Act (subareas in lakes or entire small lakes) National Monument (air pathway only) National Seashore Recreation Area National Lakeshore Recreation Area	100
Habitat known to be used by Federal designated or proposed endangered or threatened species National Preserve National or State Wildlife Refuge Unit of Coastal Barrier Resources System Coastal Barrier (undeveloped) Federal land designated for the protection of natural ecosystems Administratively Proposed Federal Wilderness Area Spawning areas critical for the maintenance of fish/shellfish species within a river system, bay, or estuary Migratory pathways and feeding areas critical for the maintenance of anadromous fish species within river reaches or areas in lakes or coastal tidal waters in which the fish spend extended periods of time Terrestrial areas utilized by large or dense aggregations of vertebrate animals (semi-aquatic foragers) for breeding National river reach designated as recreational	75
Habitat known to be used by State designated endangered or threatened species Habitat known to be used by a species under review as to its Federal endangered or threatened status Coastal Barrier (partially developed) Federally designated Scenic or Wild River	50
State land designated for wildlife or game management State designated Scenic or Wild River State designated Natural Area Particular areas, relatively small in size, important to maintenance of unique biotic communities	25
State designated areas for the protection of maintenance of aquatic life under the Clean Water Act	5
Wetlands See SI Table 14 (Surface Water Pathway) or SI Table 23 (Air Pathway)	

SI TABLE 14 (HRS TABLE 4-24): SURFACE WATER WETLANDS FRONTAGE VALUES

Total Length of Wetlands	Assigned Value
Less than 0.1 mile	0
0.1 to 1 mile	25
Greater than 1 to 2 miles	50
Greater than 2 to 3 miles	75
Greater than 3 to 4 miles	100
Greater than 4 to 8 miles	150
Greater than 8 to 12 miles	250
Greater than 12 to 16 miles	350
Greater than 16 to 20 miles	450
Greater than 20 miles	500

SURFACE WATER PATHWAY (concluded)
WASTE CHARACTERISTICS, THREAT, AND PATHWAY SCORE SUMMARY

WASTE CHARACTERISTICS	Score
14. If an Actual Contamination Target (drinking water, human food chain, or environmental threat) exists for the watershed, assign the calculated hazardous waste quantity score, or a score of 100, whichever is greater.	10
15. Assign the highest value from SI Table 7 (observed release) or SI Table 3 (no observed release) for the hazardous substance waste characterization factors below. Multiply each by the surface water hazardous waste quantity score and determine the waste characteristics score for each threat.	

	Substance Value		HWQ		Product	WC Score (from Table) ~~(Maximum of 100)~~
Drinking Water Threat Toxicity/Persistence	4.0	x	10	=	40	2 max = 100
Food Chain Threat Toxicity/Persistence Bioaccumulation	2×10^4	x	10	=	2×10^5	18 max = 1000
Environmental Threat Ecotoxicity/Persistence/ Ecobioaccumulation	2×10^4	x	10	=	2×10^5	18 max = 1000

Product	WC Score
0	0
>0 to <10	1
10 to <100	2
100 to <1,000	3
1,000 to < 10,000	6
10,000 to <1E + 05	10
1E + 05 to <1E + 06	18
1E + 06 to <1E + 07	32
1E + 07 to <1E + 08	56
1E + 08 to <1E + 09	100
1E + 09 to <1E + 10	180
1E + 10 to <1E + 11	320
1E + 11 to <1E + 12	560
1E + 12 or greater	1000

SURFACE WATER PATHWAY THREAT SCORES

Threat	Likelihood of Release (LR) Score	Targets (T) Score	Pathway Waste Characteristics (WC) Score (determined above)	Threat Score $\frac{LR \times T \times WC}{82,500}$
Drinking Water	70	5	2	(maximum of 100) 0.01
Human Food Chain	70	2	18	(maximum of 100) 0.03
Environmental	70	0	18	(maximum of 60) 0

SURFACE WATER PATHWAY SCORE (Drinking Water Threat + Human Food Chain Threat + Environmental Threat)	(maximum of 100) 0.04

SOIL EXPOSURE PATHWAY

If there is no observed contamination (e.g., ground water plume with no known surface source), do not *evaluate the soil exposure pathway. Discuss evidence for no soil exposure pathway.*

Soil Exposure Resident Population Targets Summary

For each property (duplicate page 35 as necessary):

If there is an area of observed contamination on the property and within 200 feet of a residence, school, or *day care center, enter on Table 15 each hazardous substance by sample ID. Record the detected* concentration. Obtain cancer risk, and reference dose concentrations from SCDM. Sum the cancer risk and reference dose percentages for the substances listed. If cancer risk or reference dose concentrations are not available for a particular substance, enter N/A for the percentage. If the percentage sum calculated for cancer risk or reference dose equals or exceeds 100%, evaluate the residents and students as Level I. If both percentages are less than 100% or all are N/A, evaluate the targets as Level II.

SI TABLE 15: SOIL EXPOSURE RESIDENT POPULATION TARGETS

Residence ID: ______________________ Level I _____ Level II _____ Population ______________________

Sample ID	Hazardous Substance	Conc. (mg/kg)	Cancer Risk Concentration	% of Cancer Risk Conc.	RfD	% of RfD	Toxicity Value	References
			Highest Percent		Sum of Percents		Sum of Percents	

Residence ID: ______________________ Level I _____ Level II _____ Population ______________________

Sample ID	Hazardous Substance	Conc. (mg/kg)	Cancer Risk Concentration	% of Cancer Risk Conc.	RfD	% of RfD	Toxicity Value	References
			Highest Percent		Sum of Percents		Sum of Percents	

Residence ID: ______________________ Level I _____ Level II _____ Population ______________________

Sample ID	Hazardous Substance	Conc. (mg/kg)	Cancer Risk Concentration	% of Cancer Risk Conc.	RfD	% of RfD	Toxicity Value	References
			Highest Percent		Sum of Percents		Sum of Percents	

SOIL EXPOSURE PATHWAY WORKSHEET
RESIDENT POPULATION THREAT

LIKELIHOOD OF EXPOSURE	Score	Data Type	Refs
1. OBSERVED CONTAMINATION: If evidence indicates presence of observed contamination (depth of 2 feet or less), assign a score of 550; otherwise, assign a 0. Note that a likelihood of exposure score of 0 results in a soil exposure pathway score of 0.	550		4
LE =	550		

TARGETS	Score	Data Type	Refs
2. RESIDENT POPULATION: Determine the number of people living or attending school or day care on a property with an area of observed contamination and whose residence, school, or day care center, respectively, is on or within 200 feet of the area of observed contamination. Level I: ______ people x 10 = ______ Level II: ______ people x 1 = ______ Sum =			
3. RESIDENT INDIVIDUAL: Assign a score of 50 if any Level I resident population exists. Assign a score of 45 if there are Level II targets but no Level I targets. If no resident population exists (*i.e.*, no Level I or Level II targets), assign 0 (HRS Section 5.1.3).			
4. WORKERS: Assign a score from the table below for the total number of workers at the site and nearby facilities with areas of observed contamination associated with the site.			
5. TERRESTRIAL SENSITIVE ENVIRONMENTS: Assign a value for each terrestrial sensitive environment (SI Table 16) in an area of observed contamination. Sum =			
6. RESOURCES: Assign a score of 5 if any one or more of the following resources is present on an area of observed contamination at the site; assign 0 if none applies. • Commercial agriculture • Commercial silviculture • Commercial livestock production or commercial livestock grazing			

Workers table (item 4):

Number of Workers	Score
0	0
1 to 100	5
101 to 1,000	10
>1,000	15

Terrestrial sensitive environments table (item 5):

Terrestrial Sensitive Environment Type	Value
______	______
______	______
______	______
______	______

Total of Targets T= 0

SI TABLE 16 (HRS TABLE 5-5): SOIL EXPOSURE PATHWAY TERRESTRIAL SENSITIVE ENVIRONMENT VALUES

TERRESTRIAL SENSITIVE ENVIRONMENT	ASSIGNED VALUE
Terrestrial critical habitat for Federal designated endangered or threatened species National Park Designated Federal Wilderness Area National Monument	100
Terrestrial habitat known to be used by Federal designated or proposed threatened or endangered species National Preserve (terrestrial) National or State terrestrial Wildlife Refuge Federal land designated for protection of natural ecosystems Administratively proposed Federal Wilderness Area Terrestrial areas utilized by large or dense aggregations of animals (vertebrate species) for breeding	75
Terrestrial habitat used by State designated endangered or threatened species Terrestrial habitat used by species under review for Federal designated endangered or threatened status	50
State lands designated for wildlife or game management State designated Natural Areas Particular areas, relatively small in size, important to maintenance of unique biotic communities	25

SOIL EXPOSURE PATHWAY WORKSHEET
NEARBY POPULATION THREAT

LIKELIHOOD OF EXPOSURE	Score	Data Type	Ref
7. Attractiveness/Accessibility (from SI Table 17 or HRS Table 5-6) Value 5 Area of Contamination (from SI Table 18 or HRS Table 5-7) Value 80 Likelihood of Exposure (from SI Table 19 or HRS Table 5-8)			

note: if there is no area of observed contamination, LE = 0.

LE = 25

TARGETS	Score	Data Type	Ref
8. Assign a score of 0 if Level I or Level II resident individual has been evaluated or if no individuals live within 1/4 mile travel distance of an area of observed contamination. Assign a score of 1 if nearby population is within 1/4 mile travel distance and no Level I or Level II resident population has been evaluated.	0		
9. Determine the population within 1 mile travel distance that is not exposed to a hazardous substance from the site (*i.e.*, properties that are not determined to be Level I or Level II); record the population for each distance category in SI Table 20 (HRS Table 5-10). Sum the population values and multiply by 0.1.	.002		

T = .002

SI TABLE 17 (HRS TABLE 5-6): ATTRACTIVENESS/ACCESSIBILITY VALUES

Area of Observed Contamination	Assigned Value
Designated recreational area	100
Regularly used for public recreation (for example, vacant lots in urban area)	75
Accessible and unique recreational area (for example, vacant lots in urban area)	75
Moderately accessible (may have some access improvements--for example, gravel road) with some public recreation use	50
Slightly accessible (for example, extremely rural area with no road improvement) with some public recreation use	25
Accessible with no public recreation use	10
Surrounded by maintained fence or combination of maintained fence and natural barriers	5
Physically inaccessible to public, with no evidence of public recreation use	0

SI TABLE 18 (HRS TABLE 5-7): AREA OF CONTAMINATION FACTOR VALUES

Total area of the areas of observed contamination (square feet)	Assigned Value
≤ to 5,000	5
> 5,000 to 125,000	20
> 125,000 to 250,000	40
> 250,000 to 375,000	60
> 375,000 to 500,000	80
> 500,000	100

SI TABLE 19 (HRS TABLE 5-8): NEARBY POPULATION LIKELIHOOD OF EXPOSURE FACTOR VALUES

AREA OF CONTAMINATION FACTOR VALUE	ATTRACTIVENESS/ACCESSIBILITY FACTOR VALUE						
	100	75	50	25	10	5	0
100	500	500	375	250	125	50	0
80	500	375	250	125	50	25	0
60	375	250	125	50	25	5	0
40	250	125	50	25	5	5	0
20	125	50	25	5	5	5	0
5	50	25	5	5	5	5	0

SI TABLE 20 (HRS TABLE 5-10): DISTANCE-WEIGHTED POPULATION VALUES FOR NEARBY POPULATION THREAT

Travel Distance Category (miles)	Pop.	Number of people within the travel distance category											Pop. Value
		0	1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,001	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	
Greater than 0 to $\frac{1}{4}$	0	0	0.1	0.4	1.0	4	13	41	130	408	1,303	4,081	13,034	
Greater than $\frac{1}{4}$ to $\frac{1}{2}$	0	0	0.05	0.2	0.7	2	7	20	65	204	652	2,041	6,517	
Greater than $\frac{1}{2}$ to 1	7	0	0.02	0.1	0.3	1	3	10	33	102	326	1,020	3,258	.02

Reference(s) 2

Sum = .02

SOIL EXPOSURE PATHWAY WORKSHEET (concluded)

WASTE CHARACTERISTICS

10	Assign the hazardous waste quantity score calculated for soil exposure HRS Section 5.1.2.2 and HRS Table 5-2	10
11.	Assign the highest toxicity value from SI Table 16 · 3 or for the soil exposure pathway	10^4
12.	Multiply the toxicity and hazardous waste quantity scores. Assign the Waste Characteristics score from the table below:	WC = 18

Product	WC Score
0	0
>0 to <10	1
10 to <100	2
100 to <1,000	3
1,000 to < 10,000	6
10,000 to <1E + 05	10
1E + 05 to <1E + 06	18
1E + 06 to <1E + 07	32
1E + 07 to <1E + 08	56
1E + 08 or greater	100

RESIDENT POPULATION THREAT SCORE:

(Likelihood of Exposure, Question 1;
Targets = Sum of Questions 2, 3, 4, 5, 6)

550 X 0 X 18

$\frac{\text{LE X T X WC}}{\cancel{82,500}}$

0

NEARBY POPULATION THREAT SCORE:

(Likelihood of Exposure, Question 7;
Targets = Sum of Questions 8, 9)

55 X 2 X 18

$\frac{\text{LE X T X WC}}{\cancel{82,500}}$

0.9

SOIL EXPOSURE PATHWAY SCORE:
Resident Population Threat + Nearby Population Threat ÷ 82,500

0.00 (Maximum of 100)

AIR PATHWAY

Air Pathway Observed Substances Summary Table

On SI Table 21, list the hazardous substances detected in air samples of a release from the site. Include only those substances with concentrations significantly greater than background levels. Obtain benchmark, cancer risk, and reference dose concentrations from SCDM. For NAAQS/NESHAPS benchmarks, determine the highest percentage of benchmark obtained for any substance. For cancer risk and reference dose, sum the percentages for the substances listed. If benchmark, cancer risk, or reference dose concentrations are not available for a particular substance, enter N/A for the percentage. *If the highest benchmark percentage or the percentage sum calculated for cancer risk or reference dose* equals or exceeds 100%, evaluate targets in the distance category from which the sample was taken and any closer distance categories as Level I. If the percentages are less than 100% or all are N/A, evaluate targets in that distance category and any closer distance categories that are not Level I as Level II.

SI TABLE 21: AIR PATHWAY OBSERVED RELEASE SUBSTANCES

Sample ID: ______________________ Level I _____ Level II _____ Distance from Sources (mi) ____ References ____________

Hazardous Substance	Conc. ($\mu g/m^3$)	Gaseous Particulate	Benchmark Conc. (NAAQS or NESHAPS)	% of Benchmark	Cancer Risk Conc.	% of Cancer Risk Conc.	RfD	% of RfD
	Highest Toxicity/ Mobility		Highest Percent		Sum of Percents		Sum of Percents	

Sample ID: ______________________ Level I _____ Level II _____ Distance from Sources (mi) ____ References ____________

Hazardous Substance	Conc. ($\mu g/m^3$)	Toxicity/ Mobility	Benchmark Conc. (NAAQS or NESHAPS)	% of Benchmark	Cancer Risk Conc.	% of Cancer Risk Conc.	RfD	% of RfD
	Highest Toxicity/ Mobility		Highest Percent		Sum of Percents		Sum of Percents	

Sample ID: ______________________ Level I _____ Level II _____ Distance from Sources (mi) ____ References ____________

Hazardous Substance	Conc. ($\mu g/m^3$)	Toxicity/ Mobility	Benchmark Conc. (NAAQS or NESHAPS)	% of Benchmark	Cancer Risk Conc.	% of Cancer Risk Conc.	RfD	% of RfD
	Highest Toxicity/ Mobility		Highest Percent		Sum of Percents		Sum of Percents	

AIR PATHWAY WORKSHEET

LIKELIHOOD OF RELEASE	Score	Data Type	Refs
1. OBSERVED RELEASE: If sampling data or direct observation support a release to air, assign a score of 550. Record observed release substances on SI Table 21.			
2. POTENTIAL TO RELEASE: If sampling data do not support a release to air, assign a score of 500. Optionally, evaluate air migration gaseous and particulate potential to release (HRS Section 6.1.2).	500	H	1,4
LR =	500		

TARGETS	Score	Data Type	Refs
3. ACTUAL CONTAMINATION POPULATION: Determine the number of people within the target distance limit subject to exposure from a release of a hazardous substance to the air. a) Level I: _____ people x 10 = _______ b) Level II: _____ people x 1 = _______ Total =	0	H	1,4
4. POTENTIAL TARGET POPULATION: Determine the number of people within the target distance limit not subject to exposure from a release of a hazardous substance to the air, and assign the total population score from SI Table 22. Sum the values and multiply the sum by 0.1.	4.81	H	8,9
5. NEAREST INDIVIDUAL: Assign a score of 50 if there are any Level I targets. Assign a score of 45 if there are Level II targets but no Level I targets. If no Actual Contamination Population exists, assign the Nearest Individual score from SI Table 22.	1	H	8,9
6. ACTUAL CONTAMINATION SENSITIVE ENVIRONMENTS: Sum the sensitive environment values (SI Table 13) and wetland acreage values (SI Table 23) for environments subject to exposure from the release of a hazardous substance to the air. *Sensitive Environment Type* — *Value* *Wetland Acreage* — *Value*	0	H	2,6
7. POTENTIAL CONTAMINATION SENSITIVE ENVIRONMENTS: Use SI Table 24 to evaluate sensitive environments not subject to exposure from a release.	0	H	1,4
8. RESOURCES: Assign a score of 5 if one or more air resources apply within 1/2 mile of a source; assign a 0 if none applies. • Commercial agriculture • Commercial silviculture • Major or designated recreation area	0	H	1,4
T =	5.81	H	

SI TABLE 22 (From HRS TABLE 6-17): VALUES FOR POTENTIAL CONTAMINATION AIR TARGET POPULATIONS

Distance from Site	Pop.	Nearest Individual (choose highest)	Number of People within the Distance Category: 1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	1,000,000 to 3,000,000	Pop. Value
On a source	0	20	4	17	53	164	522	1,633	5,214	16,325	52,137	163,246	521,360	1,632,455	0
0 to $\frac{1}{4}$ mile	0	*	1	4	13	41	131	408	1,304	4,081	13,034	40,812	130,340	408,114	0
> $\frac{1}{4}$ to $\frac{1}{2}$ mile	0	2	0.2	0.9	3	9	28	88	282	882	2,815	8,815	28,153	88,153	0
> $\frac{1}{2}$ to 1 mile	7	1	0.06	0.3	0.9	3	8	26	83	261	834	2,612	8,342	26,119	0.06
> 1 to 2 miles	434	0	0.02	0.09	0.3	0.8	3	8	27	83	266	833	2,659	8,326	3
> 2 to 3 miles	11,707	0	0.009	0.04	0.1	0.4	1	4	12	38	120	375	1,199	3,755	38
>3 to 4 miles	7,169	0	0.005	0.02	0.07	0.2	0.7	2	7	28	73	229	730	2,285	7

Nearest Individual = 1

Sum = 48.06

References 8, 9

* Score = 20 if the Nearest Individual is within $\frac{1}{8}$ mile of a source; score = 7 if the Nearest Individual is between $\frac{1}{8}$ and $\frac{1}{4}$ mile of a source.

SI TABLE 23 (HRS TABLE 6-18): AIR PATHWAY VALUES FOR WETLAND AREA

Wetland Area	Assigned Value
< 1 acre	0
1 to 50 acres	25
> 50 to 100 acres	75
> 100 to 150 acres	125
> 150 to 200 acres	175
> 200 to 300 acres	250
> 300 to 400 acres	350
> 400 to 500 acres	450
> 500 acres	500

SI TABLE 24: DISTANCE WEIGHTS AND CALCULATIONS FOR AIR PATHWAY POTENTIAL CONTAMINATION SENSITIVE ENVIRONMENTS

Distance	Distance Weight	Sensitive Environment Type and Value (from SI Tables 13 and 20) 23	Product
On a Source	0.10	x	
		x	
0 to 1/4 mile	0.025	x	
		x	
		x	
1/4 to 1/2 mile	0.0054	x	
		x	
		x	
1/2 to 1 mile	0.0016	x	
		x	
		x	
1 to 2 miles	0.0005	x	
		x	
		x	
2 to 3 miles	0.00023	x	
		x	
		x	
3 to 4 miles	0.00014	x	
		x	
		x	
> 4 miles	0	x	

Total Environments Score = 0

AIR PATHWAY (concluded)

WASTE CHARACTERISTICS

9.	If any Actual Contamination Targets exist for the air pathway, assign the calculated hazardous waste quantity score or a score of 100, whichever is greater; if there are no Actual Contamination Targets for the air pathway, assign the calculated HWQ score for sources available to air migration. All sources must meet the minimum size requirement of 0.5 (HRS 6.1.2.1.2)	10
10.	Assign the highest air toxicity/mobility value from SI Table 21.	1.0
11.	Multiply the air pathway toxicity/mobility and hazardous waste quantity scores. Assign the Waste Characteristics score from the table below:	WC = 2

Product	WC Score
0	0
>0 to <10	1
10 to <100	2
100 to <1,000	3
1,000 to < 10,000	6
10,000 to <1E + 05	10
1E + 05 to <1E + 06	18
1E + 06 to <1E + 07	32
1E + 07 to <1E + 08	56
1E + 08 or greater	100

AIR PATHWAY SCORE: $\frac{\text{LR (LE)} \times T \times WC}{82,500}$ = 0.07 (maximum of 100)

SITE SCORE CALCULATION	S	S^2
GROUND WATER PATHWAY SCORE (S_{GW})	0	0
SURFACE WATER PATHWAY SCORE (S_{sw})	.04	.0016
SOIL EXPOSURE (S_S)	0	0
AIR PATHWAY SCORE (S_A)	.07	.0049
SITE SCORE $\sqrt{\frac{S_{GW}^2+S_{SW}^2+S_S^2+S_A^2}{4}}$ =		0.04

COMMENTS

Reference 1

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
TN	D 981473515

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
Kennon (Genesco) Site	Split Log Road

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Brentwood	TN	37027	Williamson	187	6

09 COORDINATES: LATITUDE 35 57 25 . LONGITUDE 86 45 44 .

10 TYPE OF OWNERSHIP (Check one): X A. PRIVATE ☐ B. FEDERAL ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL ☐ F. OTHER ☐ G. UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION	02 SITE STATUS	03 YEARS OF OPERATION
1 14 86 (MONTH DAY YEAR)	☐ ACTIVE X INACTIVE	1978 (BEGINNING YEAR) 1978 (ENDING YEAR) ___ UNKNOWN

04 AGENCY PERFORMING INSPECTION (Check all that apply)

☐ A. EPA ☐ B. EPA CONTRACTOR ____ (Name of firm) ☐ C. MUNICIPAL ☐ D. MUNICIPAL CONTRACTOR ____ (Name of firm)

X E. STATE ☐ F. STATE CONTRACTOR ____ (Name of firm) ☐ G. OTHER ____ (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO.
Charles Powers	Field Coordinator	Superfund	(615) 741-6287

09 OTHER INSPECTORS	10 TITLE	11 ORGANIZATION	12 TELEPHONE NO.
Ronnie Bowers	Environmental Specialist	Superfund	(615) 741-6287
			( )
			( )
			( )
			( )

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO.
Wayne McCoy	Consultant-Edge	4301 Hillsboro Rd.; Nash.	(615) 383-3588
Ralph Mosely	Genesco	Genesco Park; Nashville	(615) 367-7314
			( )
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
X PERMISSION ☐ WARRANT		

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO.
Charles Powers	TDH&E/Superfund	(615) 741-6287

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
Thomas A. Moss	TDH&E	Superfund	(615) 741-6287	5 12 87 (MONTH DAY YEAR)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE: TN | 02 SITE NUMBER: D 981473515

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- [ ] A. SOLID
- [ ] B. POWDER, FINES
- [ ] C. SLUDGE
- [ ] D. OTHER ______ (Specify)
- [ ] E. SLURRY
- [X] F. LIQUID
- [ ] G. GAS

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

TONS ______

CUBIC YARDS ______

NO. OF DRUMS 800

03 WASTE CHARACTERISTICS (Check all that apply)

- [X] A. TOXIC
- [ ] B. CORROSIVE
- [ ] C. RADIOACTIVE
- [X] D. PERSISTENT
- [X] E. SOLUBLE
- [ ] F. INFECTIOUS
- [ ] G. FLAMMABLE
- [ ] H. IGNITABLE
- [ ] I. HIGHLY VOLATILE
- [ ] J. EXPLOSIVE
- [ ] K. REACTIVE
- [ ] L. INCOMPATIBLE
- [ ] M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS	Unknown		Organic solvents.
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS	Unknown		Organic fillers, adhesives.
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
SOL	Toluene	108883	dumped in pits	unknown	
SOL	Tetrachloroethylene	127184	dumped in pits	unknown	
SOl	1,1,1 Trichloroethylene	79016	dumped in pits	unknown	
SOL	2 Butanone (MEK)	78933	dumped in pits	unknown	
SOL	Xylene	1330207	dumped in pits	unknown	
SOL	Hexane	110543	dumped in pits	unknown	
SOL	1,1,1 Trichloroethene	79016	dumped in pits	unknown	
SOL	Acetone	67641	dumped in pits	unknown	
SOL	1,2 Dichloroethane	1300216	dumped in pits	unknown	
SOL	Benzene	71432	dumped in pits	unknown	

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

State Superfund Files

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE: TN | 02 SITE NUMBER: D 981473515

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☒ A. GROUNDWATER CONTAMINATION — 02 ☒ OBSERVED (DATE 1/28/86) — ☐ POTENTIAL — ☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED 410 — 04 NARRATIVE DESCRIPTION

Hackett Spring sampling shows contamination. Population in area not on public water approximately 410. Site is in Ordovician carbonates with no confining layer for aquifer of concern.

01 ☒ B. SURFACE WATER CONTAMINATION — 02 ☐ OBSERVED (DATE ______) — ☒ POTENTIAL — ☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED 0 — 04 NARRATIVE DESCRIPTION

Seep from site may enter tributary of Little Harpeth River.

01 ☐ C. CONTAMINATION OF AIR — 02 ☐ OBSERVED (DATE ______) — ☐ POTENTIAL — ☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED ______ — 04 NARRATIVE DESCRIPTION

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS — 02 ☐ OBSERVED (DATE ______) — ☐ POTENTIAL — ☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED ______ — 04 NARRATIVE DESCRIPTION

01 ☐ E. DIRECT CONTACT — 02 ☐ OBSERVED (DATE ______) — ☐ POTENTIAL — ☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED ______ — 04 NARRATIVE DESCRIPTION

01 ☒ F. CONTAMINATION OF SOIL — 02 ☐ OBSERVED (DATE ______) — ☒ POTENTIAL — ☐ ALLEGED

03 AREA POTENTIALLY AFFECTED Unknown (Acres) — 04 NARRATIVE DESCRIPTION

Seep leaving site. Drums and liquids dumped in pits.

01 ☒ G. DRINKING WATER CONTAMINATION — 02 ☒ OBSERVED (DATE 1/28/86) — ☐ POTENTIAL — ☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED 410 — 04 NARRATIVE DESCRIPTION

Hackett Spring sampling shows contamination and is used for drinking water supply. Population within three miles of site not on public water approximately 410.

01 ☐ H. WORKER EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE ______) — ☐ POTENTIAL — ☐ ALLEGED

03 WORKERS POTENTIALLY AFFECTED ______ — 04 NARRATIVE DESCRIPTION

01 ☐ I. POPULATION EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE ______) — ☐ POTENTIAL — ☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED ______ — 04 NARRATIVE DESCRIPTION

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
TN	D 981473515

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☐ J. DAMAGE TO FLORA — 02 ☐ OBSERVED (DATE ______) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE ______) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION (Include name(s) of species)

01 ☐ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE ______) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☒ M. UNSTABLE CONTAINMENT OF WASTES (Spills, Runoff, Standing liquids, Leaking drums) — 02 ☐ OBSERVED (DATE ______) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 410 — 04 NARRATIVE DESCRIPTION

Drums and liquids dumped in pits. By admission of company.

01 ☐ N. DAMAGE TO OFFSITE PROPERTY — 02 ☐ OBSERVED (DATE ______) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE ______) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☒ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE ______) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Drums and liquids dumped in phosphate pits. Site was not a permitted landfill.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

III. TOTAL POPULATION POTENTIALLY AFFECTED: 410

IV. COMMENTS

Residents within a one mile radius of the site have been run municipal water from Brentwood at Genesco's expense.

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

State Superfund Files

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
TN	D 981473515

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
☐ A. NPDES				
☐ B. UIC				
☐ C. AIR				
☐ D. RCRA				
☐ E. RCRA INTERIM STATUS				
☐ F. SPCC PLAN				
☐ G. STATE (Specify)				
☐ H. LOCAL (Specify)				
☐ I. OTHER (Specify)				
☒ J. NONE				

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE
☐ A. SURFACE IMPOUNDMENT		
☐ B. PILES		
☐ C. DRUMS, ABOVE GROUND		
☐ D. TANK, ABOVE GROUND		
☐ E. TANK, BELOW GROUND		
☒ F. LANDFILL	800	drums
☐ G. LANDFARM		
☐ H. OPEN DUMP		
☐ I. OTHER (Specify)		

04 TREATMENT (Check all that apply)

☐ A. INCENERATION
☐ B. UNDERGROUND INJECTION
☐ C. CHEMICAL/PHYSICAL
☐ D. BIOLOGICAL
☐ E. WASTE OIL PROCESSING
☐ F. SOLVENT RECOVERY
☐ G. OTHER RECYCLING/RECOVERY
☐ H. OTHER (Specify)

05 OTHER

☐ A. BUILDINGS ON SITE

06 AREA OF SITE

(Acres)

07 COMMENTS

Drums and liquids dumped in phosphate pits on site and covered.

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)

☐ A. ADEQUATE, SECURE ☐ B. MODERATE ☐ C. INADEQUATE, POOR ☒ D. INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC.

Drums dumped in phosphate pits on site.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE ☐ YES ☒ NO
02 COMMENTS

VI. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)

State Superfund Files

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE: TN | 02 SITE NUMBER: D 981473515

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as applicable)

	SURFACE	WELL	ENDANGERED	AFFECTED	MONITORED	03 DISTANCE TO SITE
COMMUNITY	A ☒	B ☐	A ☐	B ☐	C ☐	A >3 (mi)
NON COMMUNITY	C ☐	D ☒	D ☐	E ☒	F ☐	B <0.25 (mi)

(02 STATUS: ENDANGERED / AFFECTED / MONITORED)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)

☒ A. ONLY SOURCE FOR DRINKING ☐ B. DRINKING (Other sources available) COMMERCIAL, INDUSTRIAL, IRRIGATION (No other water sources available) ☐ C. COMMERCIAL, INDUSTRIAL, IRRIGATION (Limited other sources available) ☐ D. NOT USED, UNUSEABLE

02 POPULATION SERVED BY GROUND WATER: 410

03 DISTANCE TO NEAREST DRINKING WATER WELL: <0.25 (mi)

04 DEPTH TO GROUNDWATER	05 DIRECTION OF GROUNDWATER FLOW	06 DEPTH TO AQUIFER OF CONCERN	07 POTENTIAL YIELD OF AQUIFER	08 SOLE SOURCE AQUIFER
30 (ft)	Unknown	30 (ft)	Unknown (gpd)	☒ YES ☐ NO

09 DESCRIPTION OF WELLS (Including useage, depth, and location relative to population and buildings)

Springs and wells within three miles of site used for drinking water. Well depths average approximately 200 feet.

10 RECHARGE AREA: ☐ YES ☐ NO COMMENTS

11 DISCHARGE AREA: ☐ YES ☐ NO COMMENTS

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

☒ A. RESERVOIR, RECREATION DRINKING WATER SOURCE ☐ B. IRRIGATION, ECONOMICALLY IMPORTANT RESOURCES ☐ C. COMMERCIAL, INDUSTRIAL ☐ D. NOT CURRENTLY USED

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME	AFFECTED	DISTANCE TO SITE
Tributary of Little Harpeth River	☐	0.1 (mi)
Little Harpeth River	☐	(mi)
	☐	(mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE A. ______ NO. OF PERSONS

TWO (2) MILES OF SITE B. ______ NO. OF PERSONS

THREE (3) MILES OF SITE C. ______ NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION ______ (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE ______

04 DISTANCE TO NEAREST OFF SITE BUILDING ______ (mi)

05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
IN	D 981473515

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

☐ A 10^{-6} – 10^{-8} cm/sec ☐ B 10^{-4} – 10^{-6} cm/sec ☐ C 10^{-4} – 10^{-3} cm/sec ☐ D GREATER THAN 10^{-3} cm/sec

02 PERMEABILITY OF BEDROCK (Check one)

☐ A IMPERMEABLE (Less than 10^{-6} cm/sec) ☐ B RELATIVELY IMPERMEABLE (10^{-4} – 10^{-6} cm/sec) ☒ C RELATIVELY PERMEABLE (10^{-2} – 10^{-4} cm/sec) ☐ D VERY PERMEABLE (Greater than 10^{-2} cm/sec)

03 DEPTH TO BEDROCK	04 DEPTH OF CONTAMINATED SOIL ZONE	05 SOIL pH
10 (ft)	(ft)	

06 NET PRECIPITATION	07 ONE YEAR 24 HOUR RAINFALL	08 SLOPE: SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
48 (in)	3 (in)	4 %	SW	4 %

09 FLOOD POTENTIAL

SITE IS IN ______ YEAR FLOODPLAIN

10 ☐ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS (5 acre minimum)

ESTUARINE A ______ (mi) OTHER B ______ (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)

______ (mi)

ENDANGERED SPECIES ______

13 LAND USE IN VICINITY

DISTANCE TO:

COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS, NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES	AGRICULTURAL LANDS: PRIME AG LAND	AG LAND
A ______ (mi)	B ______ (mi)	C ______ (mi)	D ______ (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

Site is in rural area on the toe of hill with a number of old farmhouses and newer residences in the vicinity.

VII. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

State Superfund Files

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 8 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
TN	D 981473515

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER			
SURFACE WATER			
WASTE			
AIR			
RUNOFF			
SPILL			
SOIL			
VEGETATION			
OTHER			

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS

IV. PHOTOGRAPHS AND MAPS

01 TYPE ☐ GROUND ☐ AERIAL

02 IN CUSTODY OF ______________________ (Name of organization or individual)

03 MAPS ☐ YES ☐ NO

04 LOCATION OF MAPS ______________________

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

Numerous wells have been sampled within the vicinity of the site as well as pits on site.

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

State Superfund Files

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 7 - OWNER INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
TN	D 981473515

II. CURRENT OWNER(S)

01 NAME	02 D+B NUMBER	08 NAME (PARENT COMPANY, if applicable)	09 D+B NUMBER
Emmett Kennon			
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	**04 SIC CODE**	**10 STREET ADDRESS (P.O. Box, RFD #, etc.)**	**11 SIC CODE**
2934 Sidco Drive			
05 CITY / 06 STATE / 07 ZIP CODE		**12 CITY / 13 STATE / 14 ZIP CODE**	
Nashville / TN / 37204			
01 NAME	**02 D+B NUMBER**	**08 NAME**	**09 D+B NUMBER**
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	**04 SIC CODE**	**10 STREET ADDRESS (P.O. Box, RFD #, etc.)**	**11 SIC CODE**
05 CITY / 06 STATE / 07 ZIP CODE		**12 CITY / 13 STATE / 14 ZIP CODE**	
01 NAME	**02 D+B NUMBER**	**08 NAME**	**09 D+B NUMBER**
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	**04 SIC CODE**	**10 STREET ADDRESS (P.O. Box, RFD #, etc.)**	**11 SIC CODE**
05 CITY / 06 STATE / 07 ZIP CODE		**12 CITY / 13 STATE / 14 ZIP CODE**	
01 NAME	**02 D+B NUMBER**	**08 NAME**	**09 D+B NUMBER**
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	**04 SIC CODE**	**10 STREET ADDRESS (P.O. Box, RFD #, etc.)**	**11 SIC CODE**
05 CITY / 06 STATE / 07 ZIP CODE		**12 CITY / 13 STATE / 14 ZIP CODE**	

III. PREVIOUS OWNER(S) (List most recent first) / IV. REALTY OWNER(S) (If applicable; list most recent first)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	**04 SIC CODE**	**03 STREET ADDRESS (P.O. Box, RFD #, etc.)**	**04 SIC CODE**
05 CITY / 06 STATE / 07 ZIP CODE		**05 CITY / 06 STATE / 07 ZIP CODE**	
01 NAME	**02 D+B NUMBER**	**01 NAME**	**02 D+B NUMBER**
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	**04 SIC CODE**	**03 STREET ADDRESS (P.O. Box, RFD #, etc.)**	**04 SIC CODE**
05 CITY / 06 STATE / 07 ZIP CODE		**05 CITY / 06 STATE / 07 ZIP CODE**	
01 NAME	**02 D+B NUMBER**	**01 NAME**	**02 D+B NUMBER**
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	**04 SIC CODE**	**03 STREET ADDRESS (P.O. Box, RFD #, etc.)**	**04 SIC CODE**
05 CITY / 06 STATE / 07 ZIP CODE		**05 CITY / 06 STATE / 07 ZIP CODE**	

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

State Superfund Files

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 8 - OPERATOR INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
TN	D 981473515

II. CURRENT OPERATOR (Provide if different from owner)

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER

OPERATOR'S PARENT COMPANY (If applicable)

10 NAME	11 D+B NUMBER

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

III. PREVIOUS OPERATOR(S) (List most recent first; provide only if different from owner)

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

PREVIOUS OPERATORS' PARENT COMPANIES (If applicable)

10 NAME	11 D+B NUMBER

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

10 NAME	11 D+B NUMBER

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

10 NAME	11 D+B NUMBER

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

IV. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
TN	D 981473515

II. ON-SITE GENERATOR

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE

III. OFF-SITE GENERATOR(S)

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE
General Adhesives		6100 Centennial Blvd.		Nashville	TN	37202
Genesco		Genesco Park		Nashville	TN	37202

IV. TRANSPORTER(S)

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

State Superfund Files

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
TN	D 981473515

II. PAST RESPONSE ACTIVITIES

01 ☐ A. WATER SUPPLY CLOSED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ B. TEMPORARY WATER SUPPLY PROVIDED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☒ C. PERMANENT WATER SUPPLY PROVIDED 02 DATE 11/86 03 AGENCY Superfund
04 DESCRIPTION
Brentwood water lines run to residents within one mile of site. Paid for by Genesco.

01 ☐ D. SPILLED MATERIAL REMOVED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ E. CONTAMINATED SOIL REMOVED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ F. WASTE REPACKAGED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ G. WASTE DISPOSED ELSEWHERE 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ H. ON SITE BURIAL 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ I. IN SITU CHEMICAL TREATMENT 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ J. IN SITU BIOLOGICAL TREATMENT 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ K. IN SITU PHYSICAL TREATMENT 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ L. ENCAPSULATION 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ M. EMERGENCY WASTE TREATMENT 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ N. CUTOFF WALLS 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☒ O. EMERGENCY DIKING/SURFACE WATER DIVERSION 02 DATE 1/86 03 AGENCY Superfund
04 DESCRIPTION
Genesco had silt fence constructed to limit off site contamination.

01 ☐ P. CUTOFF TRENCHES/SUMP 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ Q. SUBSURFACE CUTOFF WALL 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
TN	D 981473515

II PAST RESPONSE ACTIVITIES (Continued)

01 ☐ R. BARRIER WALLS CONSTRUCTED 02 DATE ____ 03 AGENCY ____
04 DESCRIPTION

01 ☐ S. CAPPING/COVERING 02 DATE ____ 03 AGENCY ____
04 DESCRIPTION

01 ☐ T. BULK TANKAGE REPAIRED 02 DATE ____ 03 AGENCY ____
04 DESCRIPTION

01 ☐ U. GROUT CURTAIN CONSTRUCTED 02 DATE ____ 03 AGENCY ____
04 DESCRIPTION

01 ☐ V. BOTTOM SEALED 02 DATE ____ 03 AGENCY ____
04 DESCRIPTION

01 ☐ W. GAS CONTROL 02 DATE ____ 03 AGENCY ____
04 DESCRIPTION

01 ☐ X. FIRE CONTROL 02 DATE ____ 03 AGENCY ____
04 DESCRIPTION

01 ☐ Y. LEACHATE TREATMENT 02 DATE ____ 03 AGENCY ____
04 DESCRIPTION

01 ☐ Z. AREA EVACUATED 02 DATE ____ 03 AGENCY ____
04 DESCRIPTION

01 ☐ 1. ACCESS TO SITE RESTRICTED 02 DATE ____ 03 AGENCY ____
04 DESCRIPTION

01 ☐ 2. POPULATION RELOCATED 02 DATE ____ 03 AGENCY ____
04 DESCRIPTION

01 ☐ 3. OTHER REMEDIAL ACTIVITIES 02 DATE ____ 03 AGENCY ____
04 DESCRIPTION

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

State Superfund Files; Geraghty and Miller 1986 Report

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
TN	D 981473515

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ☐ YES ☐ NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

KENNON SITE

Site No. TND 981473575

Reference No. 1

Sampling log

Superfund File

94-508

KENNON SITE (GENESCO)

Date	EVENT
1/15/86	Monitoring well installation begins.
1/22/86	Areas of suspected pits excavated. Samples of water, waste, and soil obtained.
1/24/86	Further excavation of suspected pits to determine extint of dumping. Monitoring well installation continues. Local person informes state personnel of nearby wells and springs being used for drinking water.
1/28/86	Sampling of offsite Hacket Spring and Fletcher Well. Seep below site is also sampled. Full priority pollutants analysis is requested.
1/29/86	Resampled Fletcher Well (previously sampled 1/28/86) due to concern of owner over taking sample from his holding tank.
2/7/86	Resample Hacket Spring after heavy rain.
2/11/86	Sample Hacket Spring for verification of analysis by State Laboratory. Sample Myatt well also.
2/12/86	Sample offsite drinking water sources - Steve Smith Spring, Pewitt Well, Fischer Well, Johnson Well, Stubblefield Spring.
2/13/86	Sample offsite drinking water sources - Glass Well, Levine Well, Sharp Spring, Reece Smith Spring.
2/14/86	Sample offsite drinking water sources - Foster Well, Little Harpeth River at Moores Lane Bridge.
2/17/86	Sample offsite drinking water sources - Hacket Spring at Inside Tap, Allen Well, Primm Spring, Sullivan Well, Legieza Well.
2/18/86	Meeting with Genesco Consultants to discuss sampling plans for Shallow Monitoring Wells onsite. Determined areas of soil borings and offsite shallow monitoring wells. Charcoal filter was installed at Hacket's home by Genesco.
2/21/86	Sample Hacket water supply at Tap after installation of the charcoal filter. Split one sample of Monitoring well #8 onsite with Genesco Consultant. Sample spring below Edgar Johnson's home.
2/24/86	Resample Legiaza well to verify results with State Laboratory.

Date	Event
2/25/86	Sample offsite drinking water sources - Denny Well, Waggoner Well, Lowe Well, Hackett Creek (above spring), Hackett Creek (below Spring), Little Harpeth (below Hackett Creek), Dickie Well, Beyer Well, Clark Well, Dalton Well. Sampled offsite drinking water sources - Scott Well, Myatt Well, Mallory Well, Howe Well, Carson Spring.
2/26/86	All individuals whose Analysis had been returned were called and informed of these results. Sampled offsite drinking water sources - Turner Well, Clark Well, Burris Well.
2/28/86	Sample offsite drinking water sources - Atkinson Well, Denny Well (resampled), Shaw Well.
3/3/86	Drilling of shallow monitoring wells continue. Genesco consultants are running an Electro Magnetic survey of the site to determine areas of dumping.
3/4/86	Genesco Consultants are running a ground penetrating radar survey. Drill crew is still working. Delivered sample results to residences.
3/5/86	Sample Holt Well.
3/6/86	Talked to several citizens about there wells. (Outside 3 mile radius).
3/7/86	Sample offsite drinking water sources - Mallory Well, Myatt Well, Pewitt Well, Anderson Well.
3/11/86	Sample offsite drinking water sources - Dennison Well, Harmon Well.

RB/lag Customs House #8

KENNON SITE/GENESCO SAMPLING

FAMILY NAME	SPRING/WELL	SAMPLE DATE	RESULTS	REPORT ON FILE
Hackett	Spring	1-28-86	Detected	Yes
		2-7-86	Detected	Yes
		2-11-86	Detected	Yes
		2-17-86	Detected	Yes
		2-21-86	No results yet	
Fletcher	Well	1-29-86	Non-detected	Yes
Myatt	Well	2-11-86	Non-detected	Yes
Smith (Steve)	Spring	2-12-86	Non-detected	Yes
Pewitt	Well	2-12-86	Non-detected	Yes
Fisher	Well	2-16-86	Non-detected	Yes
Johnson	Well	2-16-86	Non-detected	Yes
Stubblefield (Younger & Stubblefield)	Spring	2-12-86	Non-detected	Yes
Glass	Well	2-13-86	Non-detected	Yes
Foster	Well	2-14-86	Non-detected	Yes
Levine	Well	2-13-86	Non-detected	Yes
Sharp/Farrar	Spring	2-13-86	Non-detected	Yes
Smith (Reece)	Spring	2-13-86	Non-detected	Yes
Allen	Well	2-17-86	Non-detected	Yes
Primm	Spring	2-17-86	Non-detected	Yes
Sullivan	Well	2-17-86	Non-detected	Yes
Legieza	Well	2-17-86	Detected	Yes
Little Harpeth	River	2-14-86	Non-detected	Yes

CHRONOLOGY - KENNON (GENESCO SITE)

May 21, 1985	By a letter dated 5/21/85 signed by Ralph Mosley, Genesco Inc., Genesco Park, Nashville, Tennessee 37202 notified the Division of Solid Waste Management of a chemical waste site once used by a division of Genesco, Inc. (General Adhesives). The site is on a farm owned by Emmett N. Kennon. Genesco, Inc. solicited the assistance and approval of TDHE with respects to certain actions. Genesco indicated that some of the waste was buried in barrels (50 - 80 barrels) and the remainder (44,000 gallons) was poured into a phosphate pit or pits. Genesco, Inc. stated that they believed the waste contained water based adhesives and may have contained acetone, ethyl acetate, hexane, methylene chloride, methyethyl ketone, rubber solvent, toluene, 111-trichlorolthane, trichloroethylene, and organic fillers. Genesco, Inc. expressed the intent to excavate, exhume, analyze and dispose of contaminated materials.
May 31, 1985	Don Shackleford, Head of Superfund Section, Barry Atnip, Field Coordinator, Superfund, Ralph Mosley, Genesco, and Wayne McCoy, Resource Consultant met to discuss the site. Genesco indicated that they were not sure if they really had a problem or if there was a problem they believed that it possibly was not very extensive. They agreed to submit an investigation plan by August 15, 1985.
July 2, 1985	Barry Atnip, Coordinator Superfund, Ralph Mosley, Genesco, Ed Wilson and Mark Levy of Geologic Associates, Edgar Johnson (Kennon Foreman) and Emmett Kennon made a vist to the site. This was a preliminary site investigation to visually assess the site. The trip report stated in part that there were no houses near, utility water available to homes in the area and pits were covered and sown in grass.
August 13, 1985	A proposed plan of investigation dated August 9, 1985 was received.
August 22, 1985	Barry Atnip, Coordinator, Superfund, Todd Hughes, Geologist, Superfund and Charles Powers, Coordinator, Superfund met to review the proposed plan of investigation. Several revisions were agreed on as being needed.
August 28, 1985	A letter to Ralph Mosley, Genesco, dated August 28, 1985 signed by Charles H. Powers stating the required revisions of the proposed plan of investigation was mailed.
September 13, 1985	As requested by Ralph Mosely, Genesco. Todd Hughes, Geologist, Wayne McCoy of Resource Consultants and Charles Powers, Coordinator, Superfund met to discuss the required revisions to the site investigation plan.

September 25, 1985	A revised proposed plan of investigation dated September 20, 1985 was received from Genesco with cover letter from Ralph Mosely to Charles Powers. The plan included all the required revisions.
October 2, 1985	By letter dated October 2, 1984 from Charles Powers, Superfund to Ralph Mosely, Genesco, the revised plan of investigation dated September 20, 1985 was approved.
October 9, 1985	Charles Powers, was notified by phone by Ralph Mosely that Task A and B had been started.
December 12, 1985	Charles Powers, Coordinator, Todd Hughes, Geologist, Ralph Mosely, Genesco, Wayne McCoy Rsource Consultants, and Mark Levy of Geologic Associates met for an update on the work. Wayne McCoy stated that Task A and B was completed. They presented a map indicating locations of trenches and proposed locations of wells for installation of piezometers. The start of the well drilling and pit excavation for exact location and testing would start immediately after January 1, 1986.
December 23, 1985	Received from Ralph Mosely, Genesco to Charles Powers, Superfund a ground water monitoring configuration which Todd Hughes had requested.
January 6, 1986	Todd Hughes and Charles Powers sent letter dated January 6, 1986 to Ralph Mosely stating our concerns relative to the kind of pipe proposed to be used and that if the wells were to be used for long term sampling then a diferent kind of pipe must be used.
January 14, 1986	Charles Powers, Coordinator and Ronnie Bowers, Superfund made a site visit and joined Wayne McCoy of Edge and Ralph Mosely, Genesco. Geologic Associates started drilling the wells.
January 17, 1986	Ronnie Bowers, Superfund and Charles Powers, Superfund made a site visit. We saw Mr. Hobbs of Geologic Associates. Two wells had been completed and a third well started.
January 22, 1986	Excavation of the pits for sampling started. Ronnie Bowers and Todd Hughes collected samples for Superfund. Geologic Associates did sampling for Genesco.
January 27, 1986	Meeting with Genesco, Inc. Don Shackleford, Todd Hughes, Ralph Mosely, Wayne McCoy, Ronnie Bowers, Mark Levy and Charles Powers attended. This was a session of updating. It appeared that the problem was much larger than expected. Sampling was discussed. We became aware that there were wells and springs in the area used for drinking water. An

	immediate sampling plan and informatrion to homeowners was initiated. This included immediate samples of Mr. Hackett's and Dr. Fletcher's drinking water.
	Ralph Mosely stated that the transport of waste was by Mr. Kennon driver and truck and possibly a vehicle owned or operated by Genesco.
January 28, 1986	Sampling was started on Mr. Hackett's spring. A complete list of water supply sampling and dates are attached. This list is complete up to 2-14-86. Sampling of water supply is continuing as of February 25, 1986.
February 11, 1986	Laboratory report received relative to Hackett's spring. Genesco, Inc. made plan and commitment to furnish bottled water to all households in the area if they wanted the service.
February 13, 1986	State Laboratory verified sample results of Hacketts Spring. Dr. Michael T. Bruner, Assistant Commissioner, Department of Health and Environment issued a press release.
February 18, 1986	A charcoal filter system installed in Hacketts Water supply.
February 19, 1986	An update meeting with the following present: Levy, Seaborg, Kennon, Mosely, McCoy, Shackleford, Roland, Hughes, Powers, Bowers and Ault. Mr. Shackleford stated that we would prepare an order and would attempt to get it through the system in one (1) month. Mr. Kennon, in response to a question, stated that to the best of his knowledge no one else used the site for a dump.
	A letter signed by James Ault, Director of Superfund dated February 19, 1986 to Mr. Kennon and Ralph Mosely requesting them to respond to us relative to all known responsible parties.
February 24, 1986	Dr. Michael T. Bruner, Assistant Commissioner attended the Brentwood City Commission meeting and presented the state's position.

DS/sdm/CH-8

KENNON SITE GENESCO

TND 981473515

SITE SUMMARY

The Kennon Site (Genesco) is located near the junction of Split Log Road and Wilson Pike east of Brentwood in Williamson County, Tennessee.

The site is on the Kennon farm in an area of old phosphate pits where in 1978 General Adhesives, a subsidiary of Genesco, dumped approximately 800 drums of organic solvents, organic fillers, and adhesives. The pits were then filled. The state was informed of this unregistered landfill by Genesco in 1985. Chemicals detected on site at appreciable levels in 1986 sampling were toluene; tetrachloroethylene; 1,1,1 trichloroethylene; 2 Butanone (Methyl ethyl ketone); xylene; hexane; 1,1,1 trichloroethene; acetone; 1,2 dichloroethane; and benzene.

Several private wells are still in use within three miles of the site and ground water contamination was discovered in early 1986. Residents with wells within a one mile radius (a population of approximately 118) were provided with bottled water at their discretion by Genesco until water lines could be run from Brentwood. Brentwood water is supplied by Metro Nashville and Harpeth Valley Utilities. The total population within three miles on groundwater prior to remedial action of running water lines was 410.

RCRA SUMMARY
KENNON SITE (GENESCO)
TND 981473515

The Kennon Site (Genesco) is a farm with phosphate pits that was used to dump approximately 800 drums of organic solvents, fillers, and adhesives in 1978. The site was never registered as a landfill and did not have a TSD permit.

TAM/ib

Facility name: Kennon Site (Genesco) TND 981473515

Location: Brentwood, Williamson County, Tennessee

EPA Region: IV

Person(s) in charge of the facility: Emmett Kennon

Ralph Mosely, Genesco

Name of Reviewer: Thomas A. Moss Date: 4/30/87

General description of the facility:

(For example: landfill, surface impoundment, pile, container; types of hazardous substances; location of the facility; contamination route of major concern; types of information needed for rating; agency action, etc.)

The Kennon Site (Genesco) is a drum disposal site used by General Adhesives, a subsidiary of Genesco, in 1978 to dispose of approximately 800 drums of organic solvents, fillers, water based adhesives by dumping them in phosphate pits and covering the pits at the site. The aquifer of concern is a carbonate, fracture-based, solutionally enlarged aquifer. A population of approx 410 persons were on private wells within 3 miles of the site prior to the remedial action of water lines being run.

Scores: S_M = 25.2 (S_{gw} = 43.2 S_{sw} = 5.3 S_a = NR)

S_{FE} = Not Rated

S_{DC} = Not Rated

FIGURE 1
HRS COVER SHEET

Kennon Site
TND 981473515

Ground Water Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
1 Observed Release	0 45	1	45	45	3.1
If observed release is given a score of 45, proceed to line 4. If observed release is given a score of 0, proceed to line 2.					
2 Route Characteristics					3.2
Depth to Aquifer of Concern	0 1 2 3	2		6	
Net Precipitation	0 1 2 3	1		3	
Permeability of the Unsaturated Zone	0 1 2 3	1		3	
Physical State	0 1 2 3	1		3	
	Total Route Characteristics Score			15	
3 Containment	0 1 2 3	1		3	3.3
4 Waste Characteristics					3.4
Toxicity/Persistence	0 3 6 9 12 15 18	1	15	18	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1	4	8	
	Total Waste Characteristics Score		19	26	
5 Targets					3.5
Ground Water Use	0 1 2 3	3	9	9	
Distance to Nearest Well/Population Served	0 4 6 8 10 / 12 16 18 20 / 24 30 32 35 40	1	20	40	
	Total Targets Score		29	49	
6 If line 1 is 45, multiply 1 x 4 x 5 / If line 1 is 0, multiply 2 x 3 x 4 x 5			24,795	57,330	
7 Divide line 6 by 57,330 and multiply by 100		S_{gw} =	43.2		

FIGURE 2
GROUND WATER ROUTE WORK SHEET

Kennon Site
TND 981473515

Surface Water Route Work Sheet

Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
1 Observed Release	0 45	1	0	45	4.1
If observed release is given a value of 45, proceed to line 4. If observed release is given a value of 0, proceed to line 2.					
2 Route Characteristics					4.2
Facility Slope and Intervening Terrain	0 1 2 3	1	1	3	
1-yr. 24-hr. Rainfall	0 1 2 3	1	2	3	
Distance to Nearest Surface Water	0 1 2 3	2	4	6	
Physical State	0 1 2 3	1	3	3	
	Total Route Characteristics Score		10	15	
3 Containment	0 1 2 3	1	3	3	4.3
4 Waste Characteristics					4.4
Toxicity/Persistence	0 3 6 9 12 15 18	1	15	18	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1	4	8	
	Total Waste Characteristics Score		19	26	
5 Targets					4.5
Surface Water Use	0 1 2 3	3	6	9	
Distance to a Sensitive Environment	0 1 2 3	2	0	6	
Population Served/Distance to Water Intake Downstream	0 4 6 8 10 12 16 18 20 24 30 32 35 40	1	0	40	
	Total Targets Score		6	55	
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			3,420	64,350	
7 Divide line 6 by 64,350 and multiply by 100		S_{sw} = 5.3			

FIGURE 7
SURFACE WATER ROUTE WORK SHEET

NOT RATED

Air Route Work Sheet					Kennon Site TND 981473515
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Observed Release	0 45	1		45	5.1
Date and Location:					
Sampling Protocol:					
If line 1 is 0, the S_a = 0. Enter on line 5. If line 1 is 45, then proceed to line 2.					
2 Waste Characteristics					5.2
Reactivity and Incompatibility	0 1 2 3	1		3	
Toxicity	0 1 2 3	3		9	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
	Total Waste Characteristics Score			20	
3 Targets					5.3
Population Within 4-Mile Radius	0 9 12 15 18 21 24 27 30	1		30	
Distance to Sensitive Environment	0 1 2 3	2		6	
Land Use	0 1 2 3	1		3	
	Total Targets Score			39	
4 Multiply 1 x 2 x 3				35,100	
5 Divide line 4 by 35,100 and multiply by 100		S_a =			

FIGURE 9
AIR ROUTE WORK SHEET

	S	S^2
Groundwater Route Score (S_{gw})	43.2	1866.24
Surface Water Route Score (S_{sw})	5.3	28.09
Air Route Score (S_a)	Not Rated	Not Rated
$S^2_{gw} + S^2_{sw} + S^2_a$		1894.33
$\sqrt{S^2_{gw} + S^2_{sw} + S^2_a}$		43.5
$\sqrt{S^2_{gw} + S^2_{sw} + S^2_a} / 1.73 = S_M =$		25.2

FIGURE 10
WORKSHEET FOR COMPUTING S_M

NOT RATED

Fire and Explosion Work Sheet					Kennon Site IND 981473515
Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref (Section)
1 Containment	1 3	1		3	7.1
2 Waste Characteristics					7.2
Direct Evidence	0 3	1		3	
Ignitability	0 1 2 3	1		3	
Reactivity	0 1 2 3	1		3	
Incompatibility	0 1 2 3	1		3	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
Total Waste Characteristics Score				20	
3 Targets					7.3
Distance to Nearest Population	0 1 2 3 4 5	1		5	
Distance to Nearest Building	0 1 2 3	1		3	
Distance to Sensitive Environment	0 1 2 3	1		3	
Land Use	0 1 2 3	1		3	
Population Within 2-Mile Radius	0 1 2 3 4 5	1		5	
Buildings Within 2-Mile Radius	0 1 2 3 4 5	1		5	
Total Targets Score				24	
4 Multiply 1 x 2 x 3				1,440	
5 Divide line 4 by 1,440 and multiply by 100		S_{FE} =			

FIGURE 11
FIRE AND EXPLOSION WORK SHEET

NOT RATED

Direct Contact Work Sheet		Kennon Site TND 981473515			
Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
1 Observed Incident	0 45	1		45	8.1
If line 1 is 45, proceed to line 4 If line 1 is 0, proceed to line 2					
2 Accessibility	0 1 2 3	1		3	8.2
3 Containment	0 15	1		15	8.3
4 Waste Characteristics Toxicity	0 1 2 3	5		15	8.4
5 Targets					8.5
Population Within a 1-Mile Radius	0 1 2 3 4 5	4		20	
Distance to a Critical Habitat	0 1 2 3	4		12	
Total Targets Score				32	
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5				21,600	
7 Divide line 6 by 21,600 and multiply by 100			S_{DC} =		

FIGURE 12
DIRECT CONTACT WORK SHEET

DOCUMENTATION RECORDS
FOR
HAZARD RANKING SYSTEM

FACILITY NAME: Kennon Site (Genesco) TND 981473515

FACILITY DESCRIPTION: Phosphate pits on farm filled with dumped liquids and drums and covered.

LOCATION: Brentwood, Tennessee

DATE SCORED: April 28, 1987

PERSON SCORING: Thomas A. Moss

PRIMARY SOURCE(S) OF INFORMATION (e.g., EPA region, state, FIT, etc.):

State Superfund Files

FACTORS NOT SCORED DUE TO INSUFFICIENT INFORMATION:

Air, Fire and Explosion, Direct Contact

COMMENTS OR QUALIFICATIONS:

Water lines have been run to houses that were on private wells within a one-mile radius of the site.

GROUND WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected (5 maximum):

Trans-1,2-dichloroethene; toluene; 1,1,-dichloroethane; and 1,1,1-trichloroethane detected in Hackett Spring and on site monitoring wells by State Superfund sampling (Ref. 1, 2) and are known to be toxic (Ref. 3, 4). Background well (Johnson) showed no contamination (Ref. 1, 2).

Rationale for attributing the contaminants to the facility:

Contamination found in monitoring wells on site, no contamination found in background well (Ref. 1).

2 ROUTE CHARACTERISTICS

<u>Depth to Aquifer of Concern</u>

Name/description of aquifer(s) of concern:

The aquifer of concern would be the Ordovician limestone formations (Ref. 5, 6) of the Bigby-Cannon Limestone (70-130 ft. thick), Hermitage Formation (50-150 ft. thick), and Carters Limestone (70 ft. thick). The majority of private wells in the area have depths of 150-350 ft. (Ref. 7) and would be completed in the Hermitage Formation or Carters Limestone (Ref. 5, 6) (50-100 ft. thick). See attachment 2A for further discussion of aquifer of concern.

Depth(s) from the ground surface to the highest seasonal level of the saturated zone (water table(s)) of the aquifer of concern:

N/A

Depth from the ground surface to the lowest point of waste disposal/storage:

N/A

<u>Net Precipitation</u>

Mean annual or seasonal precipitation (list months for seasonal):

N/A

Mean annual lake or seasonal evaporation (list months for seasonal):

N/A

Attachment 2A
Aquifer of Concern

There are no confining layers present within the Bigby-Cannon Limestone, Hermitage Formation, and Carters Limestone. The Bigby-Cannon Limestone contains facies ranging from a microcrystalline limestone facies to medium- and coarse-grained limestone facies (Ref. 5). The Bigby-Cannon has sinkhole development and deep weathering along vertical fractures (Ref. 6). Numerous springs are present in the area (Ref. 2).

The underlying Hermitage Formation consists of a coquina (shell hash) facies with shale partings, a laminated argillaceous limestone facies, and a limestone with shale partings (Ref. 5). The Carters Limestone underlying the Hermitage consists of an upper and lower limestone member of cryptocrystalline to fine-grained limestone with shale partings separated by a thin bentonite clay (Ref. 5). The Carters weathers to a brown plastic clay with some sinkholes (Ref. 6).

Net precipitation (subtract the above figures):

N/A

Permeability of Unsaturated Zone

Soil type in unsaturated zone:

N/A

Permeability associated with soil type:

N/A

Physical State

Physical state of substances at time of disposal (or at present time for generated gases):

N/A

* * *

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

N/A

Method with highest score:

N/A

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

1,1-dichloroethene and 1,1-dichloroethane detected in pits A and B and monitoring well #8 on site and not detected in background well (Johnson) by State Superfund sampling (Ref. 1, 2, 8).

Compound with highest score:

1,1-dichloroethene has a toxicity rating of 3 (Ref. 4) and a persistence rating of 2 (Ref. 9).

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

800 drums

Basis of estimating and/or computing waste quantity:

Genesco admission of the dumping of approximately 800 55-gallon barrels of waste material containing organic solvents, organic fillers, and water based adhesives at the site by their subsidiary General Adhesives (Ref. 10).

5 TARGETS

Ground Water Use

Use(s) and aquifer(s) of concern within a 3-mile radius of the facility:

Drinking water with no municipal water presently available (Ref. 11, 12). Genesco paid for lines to be run from Brentwood for the area within a one-mile radius of the site that had no municipal water source.

Distance to Nearest Well

Location of nearest well drawing from aquifer of concern or occupied building not served by a public water supply:

Hackett Spring is used as a drinking water supply by the Hacketts (Ref. 13). Hackett house is on east side of Wilson Pike approximately 1000 ft. north of Split Log Road (Ref. 2, 14, 15).

Distance to above well or building:

Hackett Spring is contaminated (Ref. 1), distance would be considered as zero. Actual distance from the pits is approximately 1500 ft. (Ref. 14, 15).

Population Served by Ground Water Wells Within a 3-Mile Radius

Identified water-supply well(s) drawing from aquifer(s) of concern within a 3-mile radius and populations served by each:

108 houses not on public water for a population of 410 (Ref. 16).

Computation of land area irrigated by supply well(s) drawing from <u>aquifer(s) of concern</u> within a 3-mile radius, and conversion to population (1.5 people per acre):

None identified (Ref. 17)

Total population served by ground water within a 3-mile radius:

410

SURFACE WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected in surface water at the facility or downhill from it (5 maximum):

None identified

Rationale for attributing the contaminants to the facility:

N/A

* * *

2 ROUTE CHARACTERISTICS

<u>Facility Slope and Intervening Terrain</u>

Average slope of facility in percent:

60 ft. in 1800 ft. for 3.3% slope (Ref. 14, 15).

Name/description of nearest downslope surface water:

Unnamed creek entering the Little Harpeth River north of the junction of Wilson Pike and Split Log Road (Ref. 14, 15).

Average slope of terrain between facility and above-cited surface water body in percent:

80 ft. in 1800 ft. for 4% slope (Ref. 14, 15).

Is the facility located either totally or partially in surface water?

No (Ref. 14, 15)

Is the facility completely surrounded by areas of higher elevation?

No (Ref. 14, 15)

<u>1-Year 24-Hour Rainfall in Inches</u>

3 inches (Ref. 9)

Distance to Nearest Downslope Surface Water

0.4 miles from the site to where surface drainage enters unnamed tributary of Little Harpeth River (Ref. 14, 15).

Physical State of Waste

Liquids dumped at site by admission of company (Ref. 10).

* * *

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

Landfill not adequately covered and no diversion system present--drums and liquid emptied into pits and covered with no documentation indicating adequate cap (Ref. 10).

Method with highest score:

Landfill not covered, no diversion system present.

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

1,1-dichloroethene and 1,1-dichloroethane detected in pits A and B and monitoring #8 on site by State Superfund sampling (Ref. 1, 2).

Compound with highest score:

1,1-dichloroethene has a toxicity rating of 3 (Ref. 4) and a persistence rating of 2 (Ref. 9).

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

800 drums

Basis of estimating and/or computing waste quantity:

Genesco admission of the dumping of approximately 800 55-gallon barrels of waste material containing organic solvents, organic fillers, and water-based adhesives at the site by their subsidiary General Adhesives (Ref. 10).

5 TARGETS

Surface Water Use

Use(s) of surface water within 3 miles downstream of the hazardous substance:

Recreational use of the Little Harpeth River between Split Log Road and Concord Road (Ref. 17).

Is there tidal influence?

No (Ref. 14, 15)

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

None identified (Ref. 14, 15)

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

None identified (Ref. 14, 15)

Distance to critical habitat of an endangered species or national wildlife refuge, if 1 mile or less:

None identified (Ref. 18)

Population Served by Surface Water

Location(s) of water-supply intake(s) within 3 miles (free-flowing bodies) or 1 mile (static water bodies) downstream of the hazardous substance and population served by each intake:

None identified (Ref. 19)

Computation of land area irrigated by above-cited intake(s) and conversion to population (1.5 people per acre):

None identified (Ref. 17)

Total population served:

N/A

Name/description of nearest of above water bodies:

N/A

Distance to above-cited intakes, measured in stream miles:

N/A

AIR ROUTE
NOT RATED

1 OBSERVED RELEASE

Contaminants detected:

Date and Location of detection of contaminants:

Methods used to detect the contaminants:

Rationale for attributing the contaminants to the site:

* * *

2 WASTE CHARACTERISTICS

Reactivity and Incompatibility

Most reactive compound:

Most incompatible pair of compounds:

Toxicity

Most toxic compound:

Hazardous Waste Quantity

Total quantity of hazardous waste:

Basis of estimating and/or computing waste quantity:

* * *

3 TARGETS

Population Within 4-Mile Radius

Circle radius used, give population, and indicate how determined:

0 to 4 mi 0 to 1 mi 0 to 1/2 mi 0 to 1/4 mi

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

Distance to critical habitat of an endangered species, if 1 mile or less:

Land Use

Distance to commercial/industrial area, if 1 mile or less:

Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:

Distance to residential area, if 2 miles or less:

Distance to agricultural land in production within past 5 years, if 1 mile or less:

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site?

FIRE AND EXPLOSION
NOT RATED

1 CONTAINMENT

Hazardous substances present:

Type of containment, if applicable:

* * *

2 WASTE CHARACTERISTICS

Direct Evidence

Type of instrument and measurements:

Ignitability

Compound used:

Reactivity

Most reactive compound:

Incompatibility

Most incompatible pair of compounds:

* * *

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility:

Basis of estimating and/or computing waste quantity:

* * *

3 TARGETS

Distance to Nearest Population

Distance to Nearest Building

Distance to Sensitive Environment

Distance to wetlands:

Distance to critical habitat:

Land Use

Distance to commercial/industrial area, if 1 mile or less:

Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:

Distance to residential area, if 2 miles or less:

Distance to agricultural land in production within past 5 years, if 1 mile or less:

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site?

Population Within 2-Mile Radius

Buildings Within 2-Mile Radius

DIRECT CONTACT
NOT RATED

1 OBSERVED INCIDENT

Date, location, and pertinent details of incident:

* * *

2 ACCESSIBILITY

Describe type of barrier(s):

* * *

3 CONTAINMENT

Type of containment, if applicable:

* * *

4 WASTE CHARACTERISTICS

Toxicity

Compounds evaluated:

Compound with highest score:

* * *

5 TARGETS

Kennon Site
TND 981473515

Population within one-mile radius

Distance to critical habitat (of endangered species)

TAM/ah
Disc--Higgs/GrndW4
SF-12

REFERENCES

KENNON SITE (GENESCO)

TND 981473515

1. Kennon Site Sampling and Event Chronology; State Superfund Sampling Results for Kennon Site (Genesco) with Sample Points for Wells/Springs. See Geraghty and Miller, 1986 for Sampling Locations.

2. Geraghty and Miller (1986): Plan for Investigation of the Kennon Site, Brentwood, Tennessee; prepared for Genesco, Inc., Dec. 1986.

3. G. Hawley, revised (1981): Condensed Chemical Dictionary, Tenth Edition; Van Nostrand Reinhold.

4. N.I. Sax (1984): Dangerous Properties of Industrial Materials, 6th Edition; Van Nostrand Reinhold.

5. (1963) Franklin Quadrangle Geologic Map - GM 63 NE.

6. Beaver Engineering (1977): Bedrock Geology of the Nashville and Middle Tennessee Area.

7. 2/19/87 Letter from Roger W. Lee, U.S. Geological Survey to Todd Hughes, TN Dept. of Health and Environment (Superfund) - Data on Observation Wells.

8. 3/19/86 and 3/24/86 Analytical Reports from Wayne McCoy, Edge to Ronnie Bowers, DSF; Re: Kennon Property Analytical Results. - Background Soil Sample (See Pond Sediment and Hackett Ditch).

9. (1984) Uncontrolled Hazardous Waste Site Ranking System, A Users Manual (HW-10), U.S. E.P.A.

10. 5/21/85 Letter from Ralph Mosely, Genesco to Tom Tiesler, DSWM; RE: Chemical Waste Site Once Used by a Division of Genesco.

11. 2/19/86 Letter from Frank W. Clifton Jr. Brentwood City Manager to Don Shackleford, TN Div. Superfund; Re: Cost Estimates for Water Lines.

12. 7/28/86 Letter from Ralph Mosely, Genesco to Frank W. Clifton, Jr., Brentwood City Manager; Re: Service Connections.

13. 3/16.87 Conversation of Thomas A. Moss, DSF with Ronnie L. Bowers, DSF; Re: Kennon Site (Genesco) Sample Results, Water Use.

14. (1981) Franklin Quadrangle Topographic Map - 63 NE.

15. (1957) Nolensville Quadrangle Topographic Map - 70NW.

16. 4/24/87 TDH&E Memo from Thomas A. Moss, DSF to Kennon Site (Genesco) File; Re: Ground Water Use Survey/House County for 3 Mile Radius.

17. 3/10/87 Telephone Conversation of Thomas A. Moss, DSF with Robin Bowie, Williamson County Soil Conservation Service; Re: Surface and Groundwater Use for Irrigation in the Area of the Genesco Site.

18. 12/19/85 Letter from Robert M. Thatcher, TWRA to Gordon S. Caruthers, DSWM with attachments: Critical Wildlife Habitat of Tennessee.

19. (1978) Water Quality Management Plan for the Lower Cumberland River Basin, TN Division of Water Quality Control.

20. Commissioners Order: Genesco Inc./Emmett & Rose Kennon. Order No. 863013.

TAM/dje SF #5

OVERSIZED

DOCUMENT

LATITUDE AND LONGITUDE CALCULATION WORKSHEET #1
LI USING CUSTOM RULER OR COORDINATOR™

SITE NAME: Kennon Site CERCLIS #: TND981473515

AKA: Genesco. SSID: ______

ADDRESS: Split Log Road / Wilson Pike

CITY: Brentwood STATE: TN ZIP CODE: 37027

SITE REFERENCE POINT: ______

USGS QUAD MAP NAME: Franklin, TN TOWNSHIP: ____ N/S RANGE: ____ E/W

SCALE: 1:24,000 MAP DATE: ______ SECTION: ____1/4 ____1/4 ____1/4

MAP DATUM: 1927 1983 (CIRCLE ONE) MERIDIAN: ______

COORDINATES FROM LOWER RIGHT (SOUTHEAST) CORNER OF 7.5' MAP (attach photocopy):

LONGITUDE: 86° 45' 00" LATITUDE: 35° 52' 30"

COORDINATES FROM LOWER RIGHT (SOUTHEAST) CORNER OF 2.5' GRID CELL:

LONGITUDE: 86° 47' 30" LATITUDE: 35° 57' 30"

CALCULATIONS: LATITUDE (7.5' QUADRANGLE MAP)

A) ALIGN THE BOTTOM OF THE SCALE WITH BOTTOM OF GRID. ALIGN THE TOP OF THE SCALE WITH THE TOP OF GRID. POSITION EDGE OF RULER OVER SITE REFERENCE POINT WHILE KEEPING TOP AND BOTTOM ALIGNED.

B) READ TICS ON RULER AT 1- OR 0.5-SECOND INTERVALS (INTERPOLATE).

C) EXPRESS IN MINUTES AND SECONDS (1'= 60"): ____'____.____"

D) ADD TO STARTING LATITUDE: ____°____'____.____" + ____'____.____ =

SITE LATITUDE: 35° 57' 22.0"

CALCULATIONS: LONGITUDE (7.5' QUADRANGLE MAP)

A) ALIGN THE BOTTOM OF THE SCALE WITH RIGHT SIDE OF GRID. ALIGN THE TOP OF THE SCALE WITH THE LEFT SIDE OF GRID. POSITION EDGE OF RULER OVER SITE REFERENCE POINT WHILE KEEPING TOP AND BOTTOM ALIGNED.

B) READ TICS ON RULER AT 1- or 0.5-SECOND INTERVALS. (INTERPOLATE)

C) EXPRESS IN MINUTES AND SECONDS (1'= 60"): ____'____.____"

D) ADD TO STARTING LONGITUDE: ____°____'____.____" + ____'____.____ =

SITE LONGITUDE: 86° 46' 27.0"

INVESTIGATOR: Teresa Sawyer DATE: 6/7/94

Reference 4

232 GENESCO PARK
NASHVILLE, TN 37217
OFFICES: (615) 399-1016
FAX MACHINE: (615) 399-0152
PAGING SERVICE: (615) 664-1813

MOSELY AND ASSOCIATES, INC.

AFTER-ACTION REPORT INCLUDING AIR MONITORING PROGRAM, WATER MONITORING PROGRAM, AND SITE SECURITY PROGRAM

Kennon Site - Brentwood, Tennessee

January 1993
Revised December 1993

AFTER-ACTION REPORT
INCLUDING AIR MONITORING PROGRAM, WATER MONITORING PROGRAM, AND SITE SECURITY PROGRAM
Kennon Site - Brentwood, Tennessee
January 1993
Revised December 1993

TABLE OF CONTENTS

INTRODUCTION

INTRODUCTION
Kennon Site - Brentwood, Tennessee

There are three separate documents comprising this After-Action Report:

- **The Mosely & Associates, Inc. After-Action Report** is a notebook which contains the Introduction and Site History, the Air Monitoring Program, Water Monitoring Program, and Site Security Program.

- **The Geraghty & Miller, Inc. Source Control/Remediation After-Action Report for the Kennon Site** is a separate notebook which contains a brief history of the site activity and reviews the source control remediation activities.

- ***The Geraghty & Miller, Inc. Long-Term Soils Management for the Kennon Site Report*** is a separate notebook which contains the soils management program for the site.

BACKGROUND HISTORY OF SITE

BACKGROUND HISTORY OF SITE
Kennon Site - Brentwood, Tennessee

The ten acre site undergoing remediation is located in Brentwood, Tennessee on a 150-acre tract of farmland owned by Emmett and Rose Kennon (See Figure 1). Phosphate was mined on the farmland property between 1972 and 1974, from which one pit was left unreclaimed. In 1978, this mine pit and four additional trenches were used for the disposal of industrial wastes, consisting of organic solvents, adhesives, and organic fillers from General Adhesives, which at that time was a division of Genesco Inc.

Genesco corporate officials learned of the disposal activities in 1985, at which time the Tennessee Department of Environment and Conservation (TDEC), formerly known as the Tennessee Department of Health and Environment (TDHE), was notified and a series of investigations and remedial activities were begun under the supervision and direction of TDEC.

During the initial stage, a silt fence was constructed to prevent contaminated sediment from leaving the property and an alternative water supply was provided to residents in the area. Soil sampling and geophysical surveys were conducted in the disposal areas and monitor wells were constructed on-site by consultant personnel. Domestic wells and springs were sampled by the TDHE, and the US Geological Survey (USGS) conducted a study of the regional ground-water flow system. In 1986, the City of Brentwood extended the city water lines into this area of Williamson County to provide city water to residents in the surrounding area, with Genesco participating in the funding thereof.

Geraghty and Miller, Inc. (G&M) was retained by Genesco to collect and analyze all of the existing data and to prepare a plan of investigation of the site. During 1987, that plan was implemented.

From the data obtained during the site investigation in 1987, it was concluded that the hydrogeologic system at the site is composed of three basic units. The uppermost unit (the shallow aquifer) includes a granular saprolite zone at the base of the weathering residuum and the weathered upper few feet of the bedrock. This is underlain by the Hermitage Aquitard, which is a confining zone. The Carter's Formation, which is the third unit, underlies both the hydrogeologic systems noted above and is a massive limestone formation.

The ground water flow in the shallow aquifer is towards the southwest and is largely controlled by topography. Ground water contamination was found to be restricted to the shallow aquifer and confined to a relatively small area on the Kennon property immediately adjacent to the disposal area. Based upon the data collected, it was determined that it was unlikely that any contaminants had migrated off of the Kennon property.

Work plans, investigation reports and remedial design documents were prepared during 1986 to 1990 to address the on site contaminants, and were implemented in 1989 through 1991. The site is being remediated in accordance with TDEC order, No. 86-3013, issued March 5, 1986. A Hazard Evaluation and Remedial Alternatives (HE&RA) study was conducted to identify the media of concern (ground water, adhesive waste, contaminated soils) and the optimum treatment and disposal alternatives.

The selected ground water remedial method was Remedial Alternative 1 of the HE&RA, which was comprised of a subsurface drain (See Figure 2). The subsurface collection drain was designed and installed in November 1989 to intercept the flow of ground water (See Figure 3). Intercepted ground water is removed from the site and treated through the City of Brentwood sewer system at a treatment facility operated by the Metropolitan Government of Nashville and Davidson County.

The selected source control remediation method was outlined in the G&M Source Control Plan of May 1989. The TDEC approved the Source Control Plan in April 1990 and it was implemented during the period of July 1990 through June 1991. Large mechanical screens were used from June 1990 to September 1991 to separate semi-solid and solid adhesive wastes from the soils. Excavated adhesive wastes were removed from the site and incinerated. The remaining soils were processed through the screens several times prior to the bioremediation phase of the project.

A treatability study was conducted by G&M at the site in 1990. The study determined that an adapted indigenous aerobic bacteria population was present in the soils which could be used to convert the residual contamination present in the soils to carbon dioxide.

Baseline soil sampling was conducted in 1990 and 1991, and the site was terraced into a series of surface water holding cells in order to promote the bioremediation effort (See Figures 5 and 6).

Soil and ground water sampling takes place on a scheduled basis to ensure that bioremediation continues in an effective manner.

Bioremediation is anticipated to continue until approximately the year 2002, but closure of the site will not be completed until a comprehensive sampling analysis has been conducted to ensure that the soil and ground water cleanliness meets the applicable regulations.

FIGURE 1

GERAGHTY & MILLER, INC.

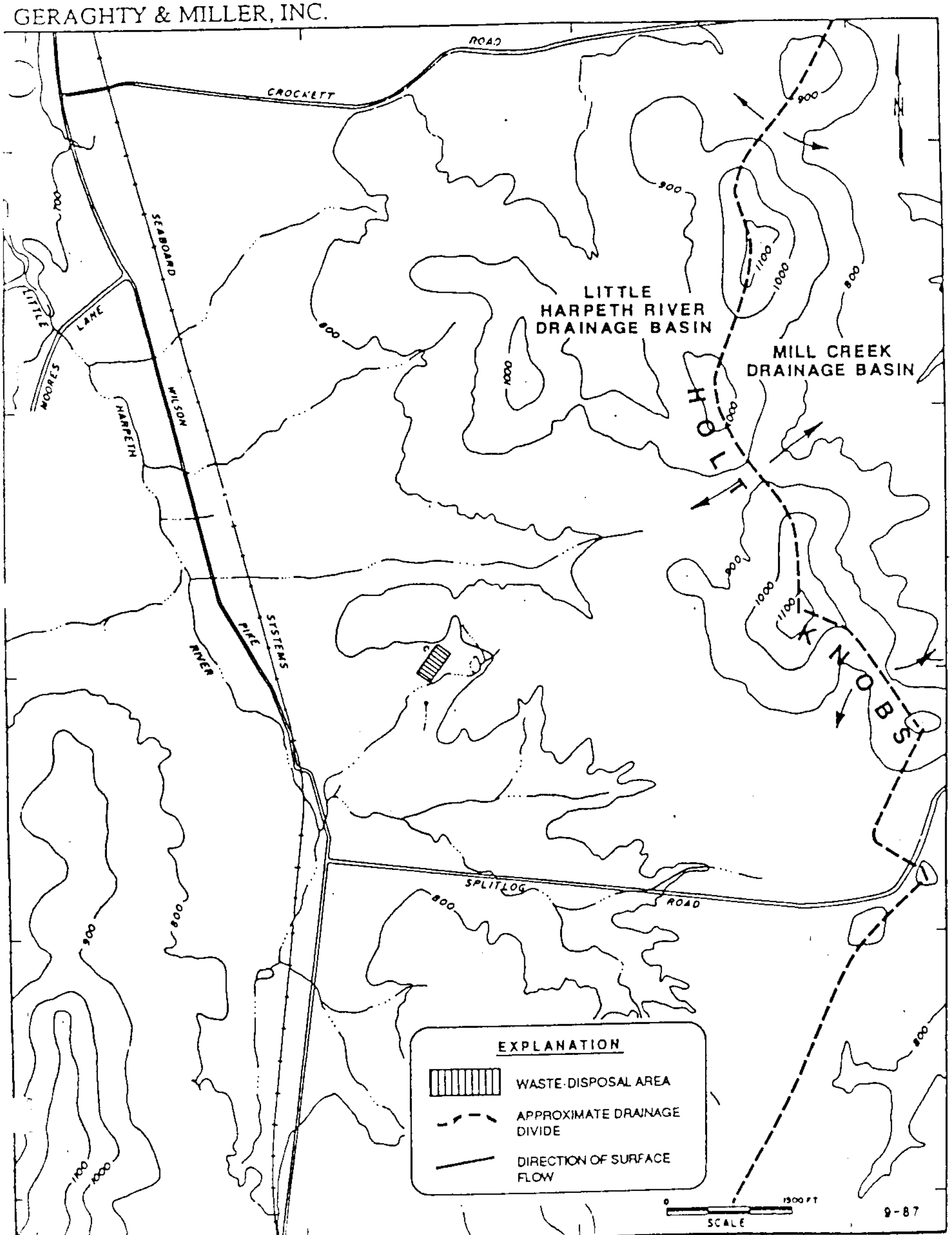
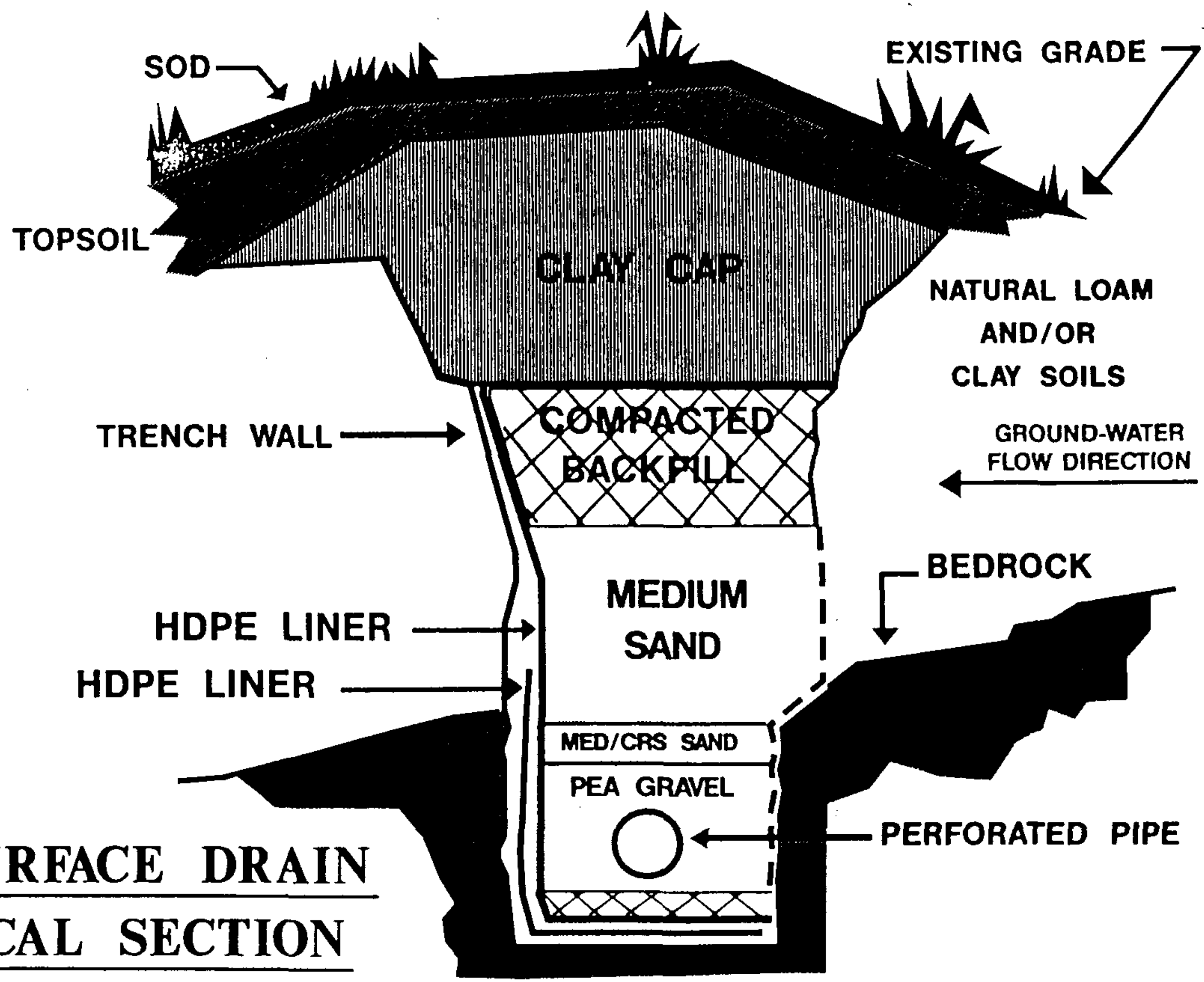
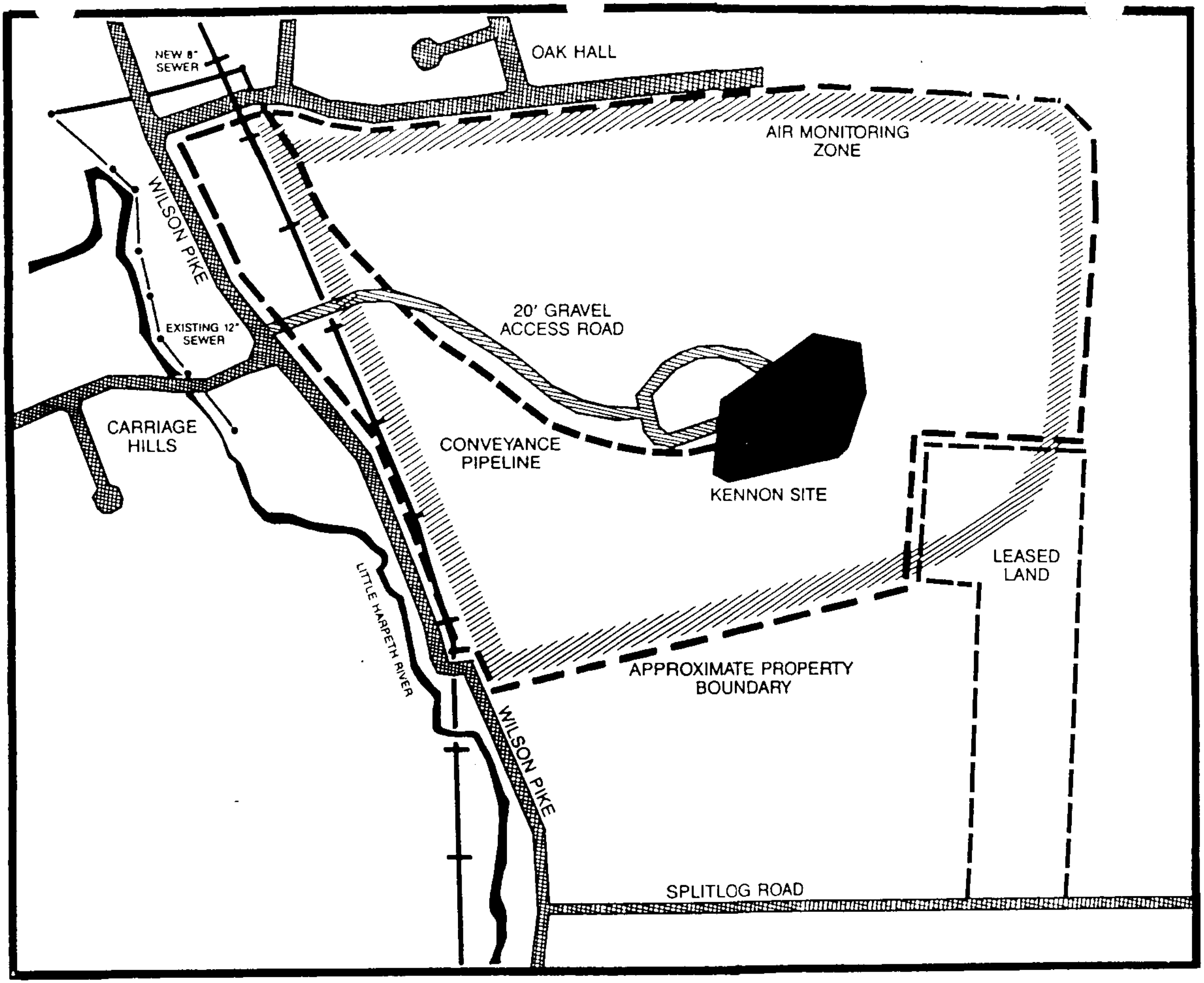


FIGURE 2



SUBSURFACE DRAIN TYPICAL SECTION

FIGURE 3



NEW 8" SEWER
OAK HALL
AIR MONITORING ZONE
WILSON PIKE
EXISTING 12" SEWER
20' GRAVEL ACCESS ROAD
CARRIAGE HILLS
CONVEYANCE PIPELINE
KENNON SITE
LEASED LAND
LITTLE HARPETH RIVER
APPROXIMATE PROPERTY BOUNDARY
WILSON PIKE
SPLITLOG ROAD

FIGURE 4

REMOVAL OF SOURCE MATERIAL

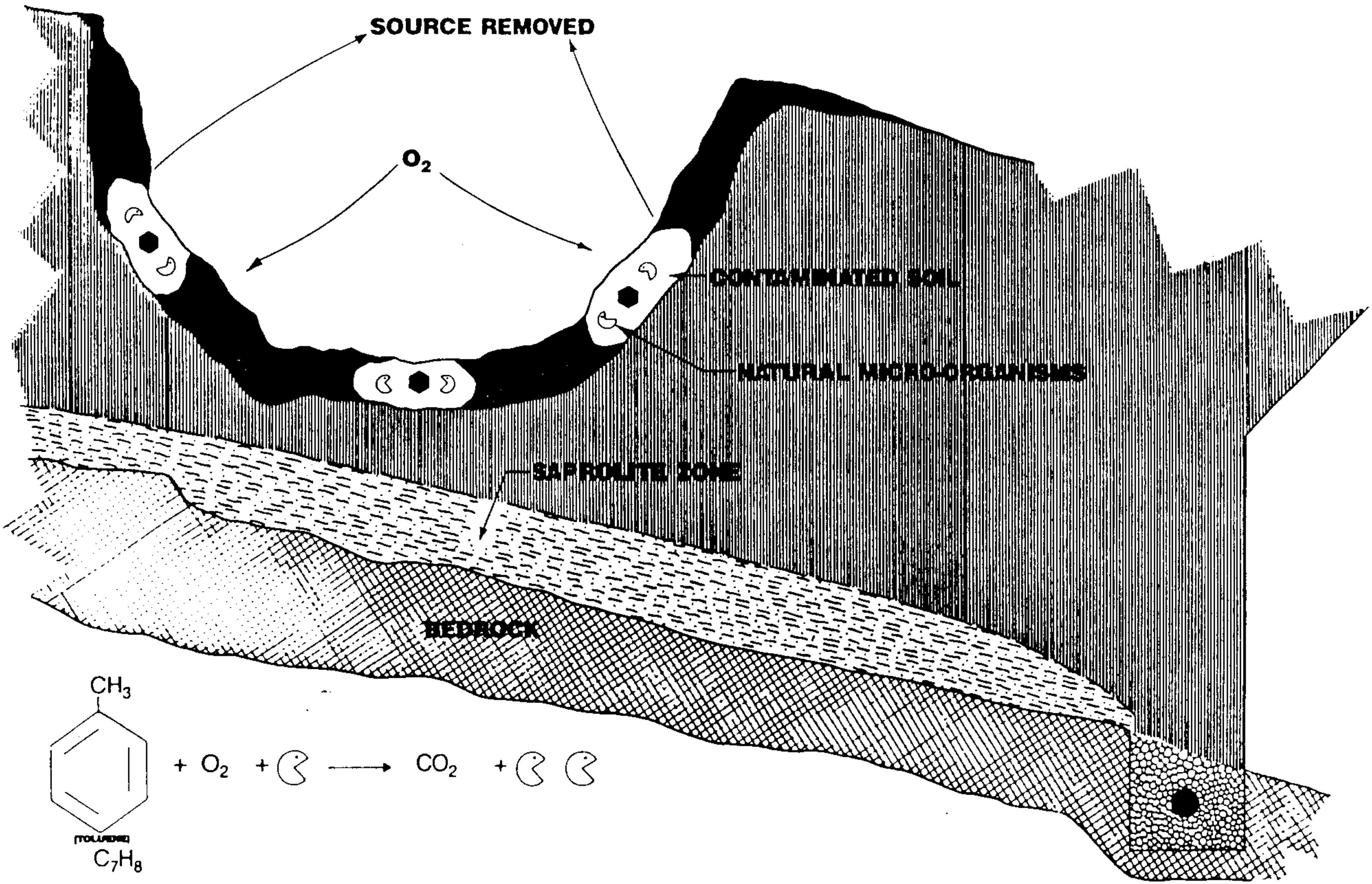
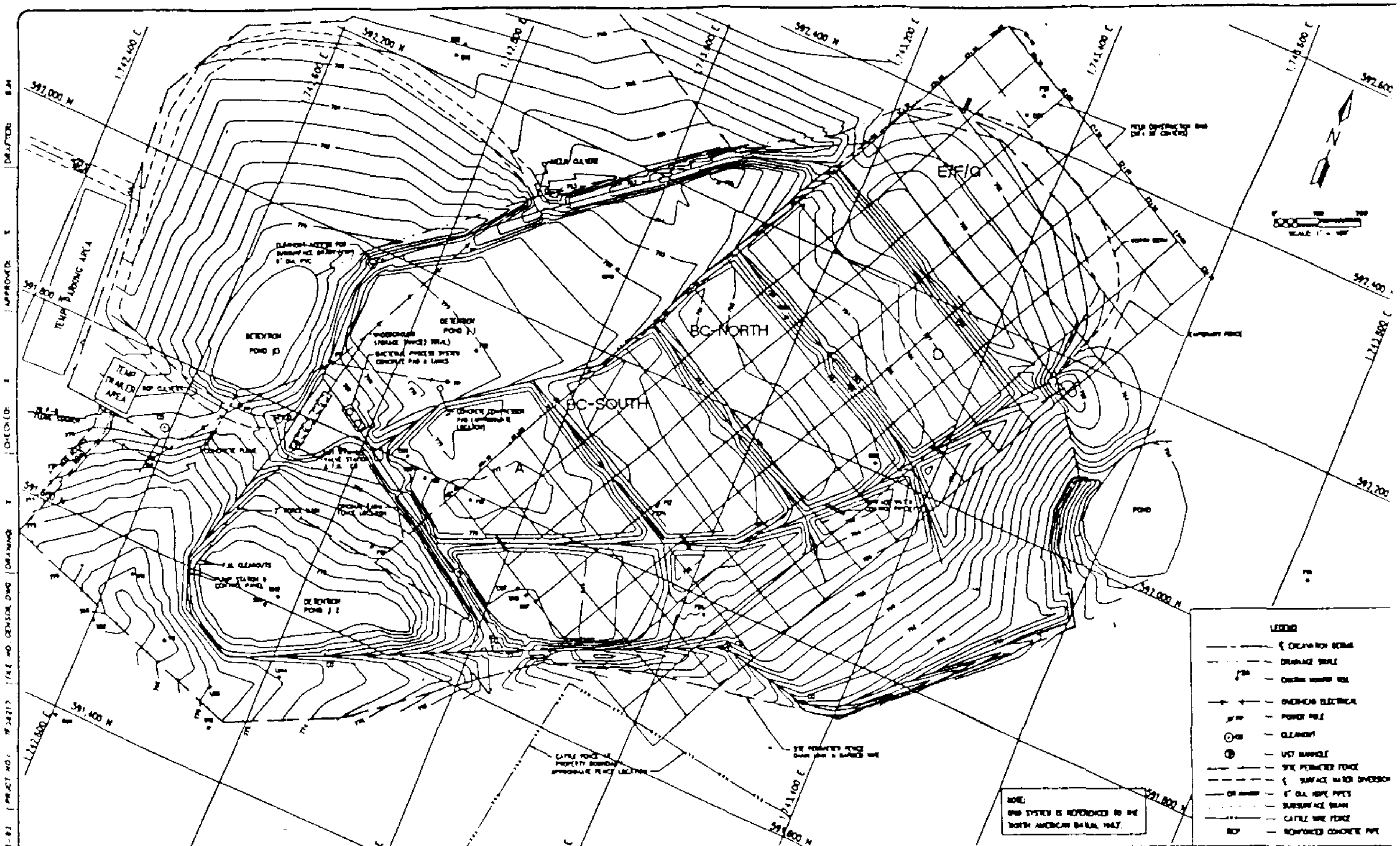


FIGURE 5



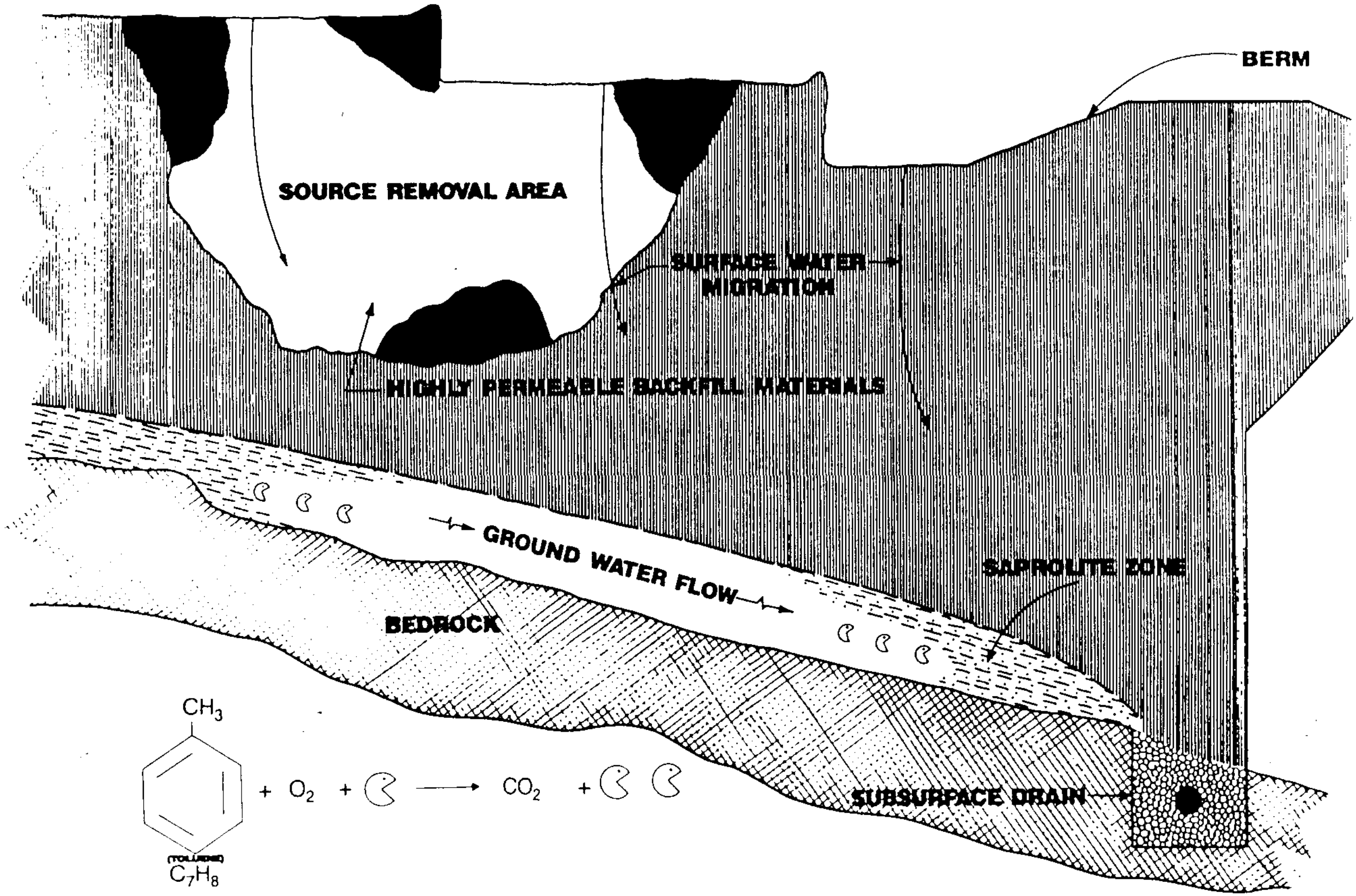
GERAGHTY & MILLER, INC.
Environmental Services

SITE LAYOUT
LONG-TERM SOILS MANAGEMENT PLAN
KENNON SITE
BRENTWOOD, TENNESSEE

FIGU
1

FIGURE 6

TERRACING PROMOTES PONDING AND INCREASES FLOW THROUGH THE SOILS



ANTICIPATED O&M COSTS AT SITE

KENNON SITE - BRENTWOOD, TENNESSEE

Future Cost Projections

FYE 95 Through FYE 2001 - As of February 9, 1993

I. <u>LONG-TERM COSTS FROM FEBRUARY 1994 - FYE 2001</u>	
Geraghty & Miller, Inc.	
Annual Costs for Bioremediation, Soil Sampling and Laboratory Analysis @ $8,000/yr x 7 yrs.	$ 56,000
Bi-Annual Bioremediation/Soil Treatment ($5,000/application - Incl. contractor x 4 applications)	20,000
Soil Re-Working - Est. in FYE 97 (incl. contractor)	30,000
Mosely & Associates, Inc.	
Air & Water Sampling/Regulatory Liaison @ $20,000/yr x 7 yrs	140,000
Operations & Maintenance (incl contractor @ $8,000 every other year x 3 yrs)	24,000
TDEC Cost Allocation ($60,000 - January 95 Payment)	*60,000*
Other Miscellaneous Costs	
Sewer, Utilities, Etc. @ $18,600/yr x 7 yrs	130,200
II. <u>SITE CLOSURE COSTS - APPROX. FYE 2001</u>	
Decontamination of Subsurface Systems (M&A and G&M)	50,000
Certifications for Meeting TDEC ARAR's	50,000
Final Closure Report (G&M)	20,000
Regulatory Liaison (M&A)	30,000
TDEC Cost Allocation (NOTE: Majority of TDEC cost will have already been previously paid)	<u>30,000</u>
FUTURE TOTAL LONG-TERM COSTS	$ 640,200

ANNUAL REPORT INFORMATION

ANNUAL REPORT INFORMATION

Kennon Site - Brentwood, Tennessee

An annual report will be prepared each year summarizing the yearly events including the sampling and soils management activities. Included will be an estimate of the volume of ground water treated and the annual expenditures. Two copies of this report will be submitted to the Division of Superfund (DSF) by March 1st of each year.

The first such report is due March 1, 1994, covering the activities for the calendar year 1993.

LONG-TERM TREATMENT CRITERIA

LONG-TERM TREATMENT CRITERIA

Kennon Site - Brentwood, Tennessee

A necessary omission from the Long-Term Soils Management Program is the reporting of risk-based soil and groundwater Applicable or Relevant and Appropriate Requirements (ARAR's), which are sometimes set by the appropriate regulatory authority as a "level of cleanliness" to which the on-site groundwater and soils are compared when de-listing of the site occurs.

Since the United States Environmental Protection Agency (EPA) has not yet determined the ARARs for sites undergoing remediation, it was felt by TDEC, Genesco and the consultants that the specification of an ARARs number for the soils and groundwater would be premature and somewhat arbitrary. The U.S. EPA continues to develop the ARARs Program and is expected to publish ARARs guidelines well before the bioremediation activities at the site are completed. After each five year period, the bioremediation system's effectiveness in achieving treatment goals through the bioremediation program will be evaluated by comparison with ARAR's published by EPA or TDEC.

AIR MONITORING PROGRAM

Section 2

AIR MONITORING PROGRAM
Kennon Site - Brentwood, Tennessee

Four tasks concerning air monitoring were accomplished on the Kennon site to obtain data concerning the possibility of airborne contaminants from the removal/remediation operations which were being conducted in 1990 and 1991. The air monitoring was accomplished in conjunction with the utilization of a comprehensive weather station located at the site, which measured the barometric pressure, outside temperature, relative humidity, wind direction, and wind speed. This information was accumulated on a continuing basis, during the periods when all source removal/remediation operations were actually conducted.

Perimeter Monitoring

Ten air monitoring stations, located around the property boundary of the Kennon farm, were equipped with 3M passive monitors to detect airborne organic vapors. The monitors were housed in specially-designed air monitoring stations, constructed of untreated redwood and galvanized screen mesh, to protect the monitors from the elements and wildlife. Photographs of the sampling stations, and a location map, are included as attachments to this document.

Monitors were changed out on a weekly basis during the active source removal phase, and on a bi-weekly basis during inactive source removal activities. The monitors were immediately labeled, sealed, and shipped to the Clayton Environmental Laboratories in Novi, Michigan, for a gas chromatograph hydrocarbon scan to determine the total level of hydrocarbons present. Gas chromatography mass spectraphotography analyzation was available in the event that the levels of the total hydrocarbons, on a cumulative, time-weighted average basis, exceeded a level indicative of the presence of hydrocarbons in excess of background levels.

Also included within this document are the results of each of the individual laboratory tests. The total hydrocarbons found on the sample itself, as well as the time-weighted average of milligrams per cubic meter (mg/M^3) are reported. At no time were background levels exceeded, showing that no harmful levels of organic vapors crossed the boundaries of the farm. The trace levels that were occasionally reported were attributed to large deposits of cow manure found in the immediate vicinity of the respective monitoring station.

Work Area Detection Alarms

Three Thermoelectron Organic Vapor Monitors (OVMs), which are sophisticated electronic monitoring instruments, were placed in special weather-tight enclosures, were equipped with radio alarm systems and were used daily during the construction process when source material was bought to the surface of the ground. They were placed upwind and downwind from the work area to pick up levels of organic vapors which might be drifting towards the property line. Should the readings be over a pre-set alarm level (four parts per million [ppm]) the alarm would trip, a radio signal would be sent to the Mosely & Associates site trailer weather station, and an investigation would immediately take place to determine the cause of the indicated high level. In most cases, the alarms came from exhaust fumes from construction or farm equipment. In those isolated cases where the alarm limit was exceeded due to on-site removal activity which did not exceed 10 ppm, immediate steps were taken on-site to contain or remove the generating source.

Daily Air Samples

During the excavation phase of the project, air samples were taken in the source removal area to insure that the source removal activities generated no airborne contaminants in the construction area at the site which may be too small to be noted by other instruments, but which might accumulate over the work day to a level which may be of concern to site workers.

SKC Air Monitoring pumps installed with charcoal tube collection media were mounted approximately five feet above ground in the North, East, South, and West quadrants surrounding the construction area at the site. A fifth pump and charcoal tube was set out in the middle of the construction area.

Each day while source removal activities were underway at the site, five air samples, plus laboratory and/or field blanks were taken in accordance with OSHA, EPA, NIOSH, and AIHA methodology and were sent to Clayton Environmental Laboratories in Novi, Michigan for analysis. This laboratory is accredited by the American Industrial Hygiene Association (AIHA) for this type of analyses.

The attached data shows the results both as the total milligrams of hydrocarbons found in the sample (mg) and a Time-Weighted Average (TWA) in mg/M^3. In all cases, no time-weighted average organic vapors were present in the construction area in an amount sufficient to cause concern regarding worker or nearby resident health and safety.

Direct Reading Instrumentation

Organic Vapor Monitors and/or Organic Vapor Analyzers (sophisticated, state-of-the-art industrial hygiene instruments), were used continually while excavation activities were taking place. These analyzers enabled Mosely & Associates, Inc. and contractor health and safety personnel to monitor levels of airborne vapors for worker and resident safety during excavation activities. This permitted sources of organic vapors to be covered, contained or treated to prevent the large scale release of those vapors.

These instruments were also used to assist in the qualification and identification of source materials for the presence of organic vapors, and to assist, along with soil and water samples, in the qualification of backfill material.

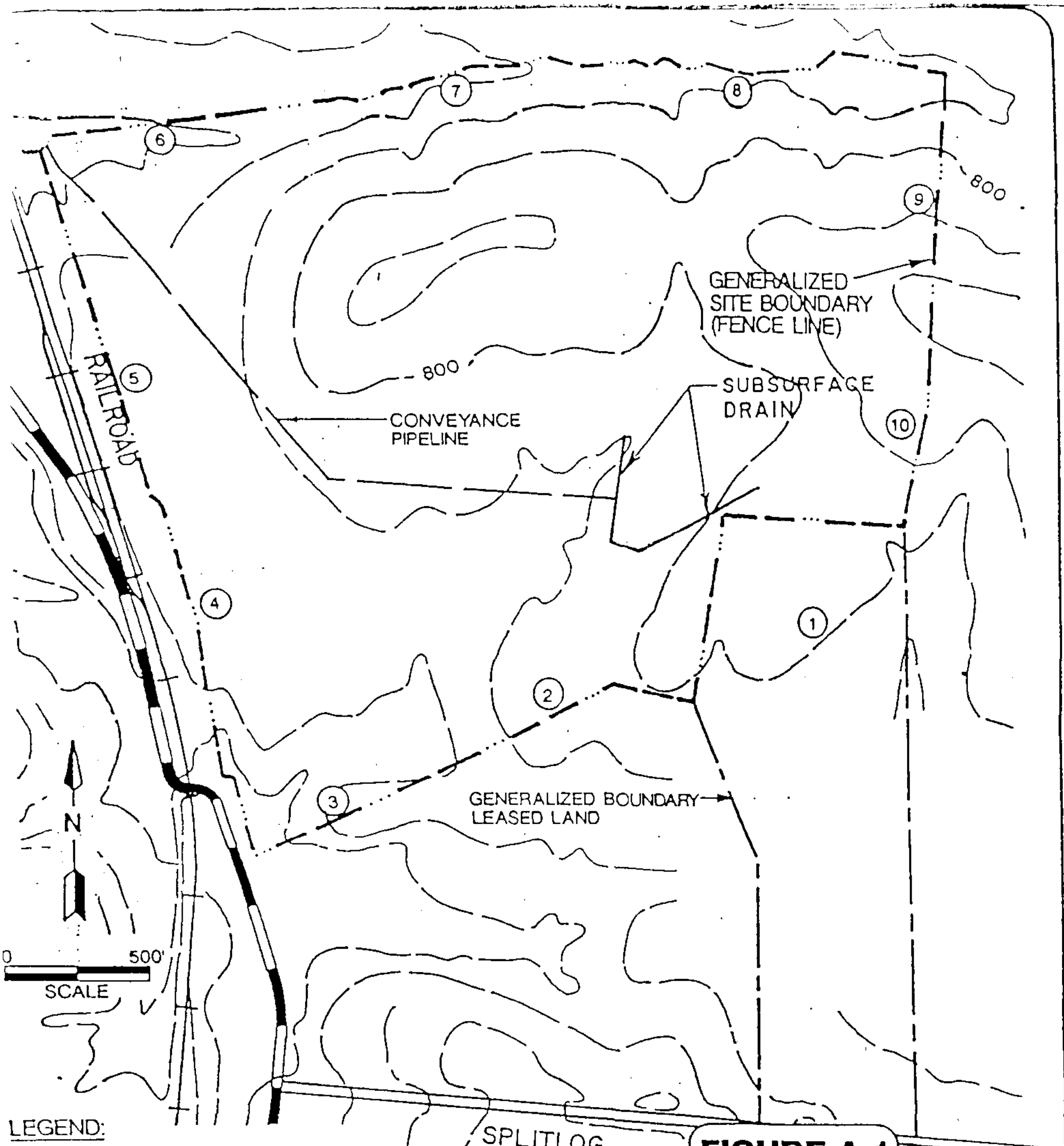


FIGURE A-1

LEGEND:

(1) AIR MONITORING LOCATIONS

DRAWING NO: FL01014-SR1	
DRAWN BY: Ken Gray	DATE: May 31, 1989
CHECKED: C. Duncan	DATE: May 31, 89
APPROVED: J. Peterson	DATE: May 31

GERAGHTY & MILLER ENGINEERS, INC.

APPROXIMATE AIR MONITORING LOCATIONS

KENNON SITE

BRENTWOOD, TENNESSEE

WATER MONITORING PROGRAM

WATER MONITORING PROGRAM
Kennon Site - Brentwood, Tennessee

Three separate documents previously submitted to TDEC govern the water monitoring procedures at the Kennon site, their requirements, and the requisite quality assurance procedures, and are reported as a part of the Groundwater Monitoring Plan, January 1993. These documents are described below:

1. **City of Brentwood Sewer Permit**: This permit, issued initially on June 1, 1990, renewed on June 1, 1992, and currently expiring on May 31, 1994, requires compliance with Metro Ordinance No. 080-343, which governs wastewater discharge into the sewer system for the Metropolitan Government of Nashville and Davidson County, and into the City of Brentwood sewer system. A copy of the Permit and related requirements is included as Appendix 2 in this section.

2. **Groundwater Monitoring Plan - Geraghty & Miller, Inc., November 1988**: This document covers the initial groundwater monitoring well installation and monitoring of those wells throughout the life of the project. It was previously submitted to the TDEC and approved by them prior to the beginning of the Groundwater Monitoring Program.

3. **Water Sampling Plan, Mosely & Associates, Inc., May 1990**: This plan combined the monitoring requirements from the above two documents, and included increased monitoring procedures for the Source Removal Phase of the project in 1990 and 1991. It was previously submitted and approved by TDEC.

Groundwater Monitoring Plan, Mosely & Associates, Inc., January 1993: This Water Monitoring Plan incorporates all of the quality assurance, sampling, and analytical requirements of the above three documents by reference into this Water Monitoring Plan, and contains the combined water sampling schedule until the site is de-listed by the Tennessee Department of Environment and Conservation. This plan was initially submitted to TDEC in January 1993 and was updated in December 1993 and is included in its entirety in this section of this report.

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MOSELY AND ASSOCIATES, INC.

GROUNDWATER MONITORING PLAN
KENNON SITE
BRENTWOOD, TENNESSEE
JANUARY 1993

Revised December 1993

GROUNDWATER MONITORING PLAN
KENNON SITE
BRENTWOOD, TENNESSEE
JANUARY 1993
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GROUNDWATER MONITORING PLAN
KENNON SITE
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1.0 PROJECT DESCRIPTION

Mosely & Associates, Inc. has been retained by Genesco Inc. to provide environmental safety management services in connection with the Kennon site, located near Wilson Pike In Brentwood, Tennessee. One of the specific services of our environmental activities is to collect and arrange to have analyzed samples of groundwater and/or wastewater that is, or may be, conveyed to the City of Brentwood sewer system.

This document reviews the sampling and quality assurance procedures to be taken in accomplishing this task.

Wastewater sampling and analysis is being accomplished for three different phases of the Kennon site project:

1. MONITOR WELL SAMPLING: This activity is provided relative to the "GroundWater Monitoring Plan for the Kennon Site, Brentwood, Tennessee, November, 1988", which was prepared by Geraghty & Miller, Inc., Oak Ridge, Tennessee. This plan was approved by TDEC and sets forth the sampling and quality assurance procedures for monitoring the groundwater quality of selected previously-installed monitoring wells inside and outside the bermed area on the Kennon property.

   Under this program, sampling is performed on selected monitoring wells on a quarterly basis and the sample results are submitted to the TDEC.

2. CITY OF BRENTWOOD SEWER SAMPLING: Specific wastewater sampling for sewer discharge is required by the City of Brentwood Department of Water and Sewerage Services Permit No. 89-001 for the Discharge of Industrial Wastes, issued to Genesco Inc. on June 1, 1989.

   Discharge to the sewer is in the form of groundwater collected through the subsurface drain system at the Kennon site, and potentially may contain trace levels of volatile organic compounds (VOC's). A baseline sample and analysis for the priority pollutants - volatiles, and the full "Metro" list is collected and analyzed annually. The priority pollutants list for volatiles is collected and analyzed on a quarterly basis. Beginning in 1994, an analysis for flow, BOD_5, SS, oil and grease, pH, ammonia, iron, zinc, cadmium, and magnesium will also be accomplished on a semi-annual basis, to comply with requirements Imposed upon the city of Brentwood by Metro. Results are sent to both the City of Brentwood and to TDEC.

3. **SOURCE REMOVAL PHASE - GROUNDWATER DISCHARGE MONITORING PROGRAM**: Beginning in the late Spring of 1990, Genesco Inc. entered into the Source Removal/Soil Remediation Phase of the Kennon project. In this phase, groundwater and decontamination rinsate that was collected on site was processed through a solvent-water separator and/or process control unit for use in the soil remediation/bioremediation activities. Excess groundwater was discharged to the City of Brentwood Sewer System. Increased sampling frequency and quality assurance steps for groundwater monitoring were required during that particular phase of the Kennon Site remediation project. The results were sent to both the City of Brentwood and to TDEC.

1.1 BACKGROUND INFORMATION

Groundwater monitoring through both the Monitor Well Sampling and Sewer Discharge Programs has been accomplished for several years on this project. Sample results from both programs indicate that contaminants are not present in the monitor wells or sewer discharge, except for trace levels of a few volatile organic compounds. All trace levels of volatile organic compounds found were considerably lower than limitations set forth in the City of Brentwood or Metropolitan Government of Nashville and Davidson County Sewer Use Ordinances.

2.0 SAMPLING and QUALITY ASSURANCE PROCEDURES

This section presents the scope and the methodology of sampling activities to accomplish this project. The primary quality assurance objectives for the sampling procedures are : (a) that the samples obtained are representative of the total wastewater stream into the sewer; (b) that a sufficient amount of the sample is taken so that the appropriate analyses may be accomplished by the analytical laboratory; (c) that the proper handling and preservation procedures are followed *to maintain the integrity of the sample; and (d) that the sampling procedures are well documented.*

References for sampling procedures that will be used include:

(1) NPDES Compliance Sampling Manual, U.S. Environmental Protection Agency, Office of Water Enforcement, October 1979.

(2) Sampling Procedures for Hazardous Waste Streams, deVera, et al.

(3) Safety Manual for Hazardous Waste Site Investigations, U.S. Environmental Protection Agency.

(4) NIOSH Manual of Analytical Methods, Third Edition, National Institute of Occupational Safety and Health, U.S. Department of Health, Education and Welfare, February, 1984.

(5) Methods for Chemical Analysis of Municipal and Industrial Wastewater, U.S. Environmental Protection Agency, EPA-600/482-057.

(6) Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, National Institute for Occupational Safety and Health, NIOSH-85-115.

2.1 SAMPLING SAFETY

The Health and Safety Plan, prepared for the Kennon site by Geraghty & Miller, Inc. and contained in the Groundwater Monitoring Plan of November 1988, is used as a guideline for safety procedures to be implemented and followed during sample collection, and includes the following considerations: (a) respiratory protection where required for collecting samples of suspected high concentrations of hazardous materials; (b) protective clothing which may be required during the sampling procedures; (c) contingency plans for emergencies, including a list of telephone numbers for ambulance service, hospital, fire department, police department and poison control; and directions to the nearest medical facility. The necessary protective clothing and safety procedures will be determined by the Site Health and Safety Officer (SHSO) before sampling activities begin.

2.2 SAMPLING SCHEDULES

The sampling schedules for the three (3) water sampling programs at the Kennon site are set forth below:

2.2.1 SAMPLING SCHEDULE - MONITOR WELLS - KENNON SITE

Sampling for Priority Organic Pollutants - Volatiles is accomplished on a quarterly basis at selected monitoring wells, in compliance with the TDEC-approved GroundWater Monitoring Plan published in November, 1988. This list for volatiles is the same as those listed under EPA's Total Toxic Organic-Volatiles list. Sampling and analysis for the full EPA Priority Pollutants list, less pesticides and PCB's, is accomplished at those specified monitoring wells on an annual basis, in conjunction with the sampling and analysis for volatiles for that particular quarter. This is normally accomplished in the fourth quarter of each calendar year.

2.2.2 SAMPLING SCHEDULE - CITY OF BRENTWOOD SEWER SAMPLING

Genesco's sewer discharge permit requires semi-annual sampling and analysis for flow, biochemical oxygen demand (BOD), suspended solids, oil and grease, pH, ammonia, iron, zinc, cadmium and magnesium. In addition, the City of Brentwood verbally requested that the quarterly analysis for volatiles, which is accomplished at the City of Brentwood sewer inlet (Manhole "X"), be provided to them. They likewise have requested that the annual analysis for the sample collected for TDEC at Manhole "X" and analyzed for the full Priority Pollutants List (less pesticides and PCB's) be provided to them. This request has also been, and will continue to be, honored. As previous samples have shown no detectable amounts of these materials, this analysis will be performed annually, will be called the Comprehensive Sample and Analysis, and will include the analysis for parameters collected on a quarterly basis, as outlined below, as well. Should the comprehensive sample taken on an annual basis show a constituent above the regulatory limit, the source will be identified, where possible, and that particular constituent, or class of constituents, will be sampled on a quarterly basis until two consecutive quarterly analyses show that parameter not exceeded.

On a quarterly basis, samples will be collected and analyzed for volatile organics priority pollutants (see attached listing) to ensure that the trace amounts previously found stay well within the criteria for discharge into the City of Brentwood sewer system. These will be analyzed utilizing EPA test method 8240 by a laboratory certified by the State of Tennessee for wastewater analysis.

2.2.3 SAMPLING SCHEDULE - SOURCE REMOVAL PHASE - GROUNDWATER DISCHARGE MONITORING PROGRAM

1. BASELINE ANALYSIS: Previous groundwater monitoring on the site has shown no detectable amounts of metals, pesticides, PCB's or cyanides. Also, levels of Biological Oxygen Demand, 5-day (BOD_5), Chemical Oxygen Demand (COD), oil and grease, suspended solids, or pH recorded have not caused a concern over water quality to be discharged into the City of Brentwood sewer system. Only small amounts of certain volatile organic compounds have been found in the groundwater, all of which are projected to easily meet the City of Brentwood/Metropolitan Government of Nashville and Davidson County (METRO) criteria.

   During the Source Removal Phase of the site remediation project (from November 1990 through January 1991, and again from April through October 1991, to verify the groundwater quality, a Baseline Sample was collected on the first day that source material was excavated. The Baseline Sample included a laboratory analysis for the parameters shown in the attached table (see the Water Monitoring Results following in this section of this report) and was performed by a laboratory certified by the State of Tennessee for performing wastewater analysis.

2. MONTHLY ANALYSIS of GROUNDWATER DISCHARGE: The Baseline Analysis was repeated monthly to ensure that wastewater quality for all baseline parameters remained within the City of Brentwood and METRO limits.

3. WEEKLY ANALYSIS - VOLATILE ORGANICS: Since trace amounts of volatile organic compounds have previously been found in the groundwater discharge from this site, samples for the Organic Priority Pollutants - Volatiles, were collected on a weekly basis when excavation was being accomplished to ensure that the sewer discharge remained within the City of Brentwood/METRO limitations.

4. SAMPLING METHODOLOGY: Because of the potential presence of Volatile Organic Compounds in the site wastewater, grab samples were collected for all analyses.

5. SAMPLING SCHEDULE TABLE: The attached table (see the Groundwater Monitoring Schedule for the Kennon Site following in this section of this report) presents the above sampling schedule and results in tabular form.

2.3 SAMPLING EQUIPMENT

Sampling equipment necessary for the collection of representative wastewater samples for all sampling programs is presented below:

1. Several gallons of distilled water and properly cleaned wash bottles
2. Plastic sheeting or large size garbage bags
3. Bottom filling Teflon or stainless steel bailer with appropriate nautical rope lengths
4. Graduated, glass or Teflon sample collection and quantification containers
5. Appropriate laboratory-prepared sample containers
6. Sample bottle labels, waterproof marking pen
7. pH meter

8. Thermometer
9. Specific conductivity meter
10. *Preservatives for water samples (unless already in sample containers)*
11. Field data forms, clip board, pen
12. Ice chest and ice or freezer packs
13. Steel measuring tape
14. Flashlight
15. Appropriate collection/holding/reach equipment
16. Clean rags or wipes
17. Laboratory grade detergent

2.4 FIELD ANALYSIS PROCEDURES - ALL SAMPLING PROGRAMS

Analyses of pH, temperature and specific conductance will be made in the field at the time of the sampling because these parameters can change rapidly after the sample is collected. Enough water will be removed from each sampling point to determine the temperature of the water, specific conductivity, and pH. These values will be recorded on a field data sheet and the surplus water dispensed in such a manner so as to avoid potential contamination. Instruments will be calibrated before and after sampling to ensure that the sample collected is representative of the aquifer at that point, or of the wastewater flow.

Samples for volatile organics will be taken in VOA vials and properly filled and inverted to insure the absence of air in the sample container.

Other containers as specified by the Metropolitan Government of Nashville and Davidson County and/or the City of Brentwood will be utilized, where directed. Immediately after the sample is collected with either a bailer or with another type sample collection device, it will be transferred to the sample containers containing the appropriate preservatives.

2.5 SAMPLE COLLECTION METHODS

Sampling will be conducted in the sewer man-hole, monitoring well or lift station as specified by the sampling plan. Sample collection containers or a bailer are to be used to obtain the sample which will then be poured into the laboratory-supplied container. Such collection container or bailer will be decontaminated as specified below prior to sample collection. A "clean capture" methodology will be used to prohibit contamination of the collection container from the walls of the sewer pipe, flume or holding tank itself.

For monitoring well samples, a stainless steel or Teflon bailer will be utilized for purging approximately three well volumes of standing water in well casings, as well as for the collection of the sample itself. The pH and specific conductance of the purged water will be tested periodically to ensure that the sample is representative of the aquifer and is not affected by the conditions at the well. If consistent readings of these parameters are obtained over the purging period, it will be assumed that the evacuation of standing water in the well is adequate.

The VOC sample will be collected with the same bailer used for purging the well, and bailers will be carefully decontaminated as specified below between each sampling location.
For monitoring sewer discharge samples and process tank samples, either a stainless steel or

Teflon bailer or special glass or stainless steel collection container will be used for collecting the wastewater or sewer samples. Samples will be poured from the collection containers into the sample containers without making direct contact between the two vessels. Sample containers will be immediately labeled and appropriate notations made in the Water Sampling Log as shown in this section of this report.

2.5.1 DECONTAMINATION PROCEDURE

Bailers and other sample collection containers will be rinsed with tap or distilled water, washed with a laboratory-grade detergent solution, rinsed with distilled water, and allowed to air dry. The bailers and other sample collection containers will be wrapped in aluminum foil for transportation between sample locations. The use of organic solvents such as acetone or isopropyl alcohol for decontamination will not be utilized due to the risk of introducing false positives into the analysis protocols.

2.6 SAMPLE PRESERVATION

The attached table (immediately following this section of this report) presents the wastewater sampling and testing considerations, including the type and quantity of preservatives, for a wide range of constituents which include those being sampled at this location. In most cases, the containers are prepared by the analytical laboratory and the preservatives also furnished by them for the specific sampling being accomplished. Samples will be maintained at the required temperature by transporting them in special containers which contain either ice or ice packs specifically made for such refrigeration purposes.

2.7 FIELD BLANKS, RINSATE BLANKS, DUPLICATES, SPLITS

The following information applies to the use of field blanks, rinsate blanks, duplicates and splits, for all sampling programs.

2.7.1 FIELD BLANKS

One (1) Field Blank will be obtained during each daily sampling event for Volatile Organic Compounds, by pouring laboratory-supplied, purged water for VOA sample blanks into a VOA vial. It will be labeled, handled and transported with the other VOA samples collected that day. The laboratory will perform the same analysis on the VOA Field Blank as the other VOA samples collected, to determine if contamination of samples in transportation or a systematic laboratory error may have occurred.

2.7.2 RINSATE BLANKS

Where sample collection containers or a bailer is used at more than one sample location during a daily sampling event, one sample of the rinsate from that container or bailer will be collected in a VOA vial and will be analyzed with the other samples, to determine if the decontamination process adequately cleaned the sample collection container or bailer. If more than one decontamination method is used, or more than one supply of laboratory-grade detergent is utilized in the decontamination process, a rinsate blank will be obtained each time the method or detergent is changed.

2.7.3 DUPLICATES

Each VOA sample will be collected in duplicate VOA vials, to allow for a margin of error in either sampling or laboratory personnel's handling of VOA vials. If the first VOA vial is successfully analyzed, its duplicate will not be analyzed.

2.7.4 SPLITS

If samples are to be split with a regulatory agency or other authorized personnel, both samples will be collected at the same time and will be marked or tagged so that each may be identified as a split of the other.

If different sample collection containers or bailers are utilized to obtain the samples, both parties' Water Sampling Logs will be noted as such.

3.0 SAMPLE DOCUMENTATION

The following sets forth the sample documentation criteria.

3.0.1 FIELD SAMPLE MEASUREMENTS

The field samples to be collected can be classified into two categories: (a) in-situ measurements, and (b) laboratory measurements:

1. IN-SITU MEASUREMENTS:
   These measurements are made immediately after the sample has been collected. The data will be recorded directly onto the Water Sampling Log form as shown in the attached Exhibit 2-1, along with identifying information on sampling conditions and location. In-situ measurements include the following: pH, temperature and conductivity.

2. LABORATORY MEASUREMENTS:
   Samples collected and preserved in the field to be shipped to the appropriate laboratory for chemical analyses are specified as laboratory measurements. Identifying information on sampling conditions and location of sample will be recorded as indicated above, together with a record of the required analyses for each of the samples collected.

3.0.2 CHAIN-OF-CUSTODY

Documentation of sample custody is an important part of field and laboratory operations when samples are needed for regulatory agencies or for litigation. Chain of custody procedures will document sample possession from the time of collection to disposal, in accordance with guidelines established in the EPA Safety Manual for Hazardous Waste Site Investigations (September, 1980). In order to document sample custody, the following Chain of Custody procedures will be followed. For the purpose of these procedures, a sample is considered in custody if it is:

(1) in actual possession of the responsible person;

(2) in view, after being in physical possession;

(3) locked so that no one can tamper with it, after having been in physical custody or possession; or

(4) in a secured area, restricted to authorized personnel.

Each field sample collected will be identified by a sample tag or label on the container itself which is filled out using water-resistant ink. Included on the tag or label, which is usually supplied by the laboratory, are the sample identification number, date, time and location of sample collection, designation of the sample (whether grab, pumped, or composite), the type of sample and preservative, if any, and any pertinent remarks. The signature of the sampler will also be included on the tag or label.

This information will be recorded on the Water Sampling Log form along with any in-situ measurement data and field observations. After collection and identification, the sample will be maintained under the chain of custody procedures as specified elsewhere in this document. If the sample collected is to be split with a governmental or regulatory agency, then the appropriate sample receiver will be indicated on the split sample tag which is affixed to the container containing the split sample and on the sampling log.

3.1 SAMPLE TRANSFER AND SHIPMENT

The following guidelines will be followed in transferring and shipping samples:

1. With the shipping record prepared for each laboratory, samples will be properly packaged for shipment and dispatched to the appropriate laboratory for analysis. Shipping containers will be properly secured for shipment and will be affixed with signature seals if an individual other than the sampler will be delivering the samples to the analytical laboratory.

2. When transferring possession of samples, the individual relinquishing the sample and the new custodian of the sample will sign the record and will note the date and time. A copy of the signed record will be made by the previous custodian and sent to the receiving laboratory to allow tracking of sample possession. All Change of Custody of samples must be a person-to-person exchange of both custody documents and samples. A copy of custody documents will be returned by the laboratory performing the analysis after the samples have been received, and again with the final data package.

3.2 LABORATORY CUSTODY PROCEDURES

General guidelines describing methods for laboratory sample custody are contained in the QA/QC documentation of the analytical laboratory selected to analyze the samples, and may be provided upon request.

4.0 DATA REDUCTION, VALIDATION, INTERPRETATION AND REPORTING

The reduction of the laboratory data, validation of the procedures utilized, the interpretation of the results and the reporting of the results to the client or to the regulatory agency will be accomplished as directed by the client. Laboratory validation data from the laboratory performing the analysis will accompany the report where such validation is necessary.

WASTEWATER SAMPLING AND TESTING CRITERIA

MOSELY & ASSOCIATES, INC.
WASTEWATER SAMPLING AND TESTING CRITERIA

Parameter Name	Container[1]	Preservation Technique[2,3]	Max. Holding Time[4]	Sample Vol. Recommended
Bacterial Tests:				
Coliform, fecal and total	P, G	Cool, 4° C, 0.008% $Na_2S_2O_3$[5]	6 Hours	150 mls
Fecal streptococci	P, G	Same as Above	6 Hours	150 mls
Inorganic Tests:				
Acidity	P, G	Cool, 4°C	14 days	250 mls
Alkalinity	P, G	Cool, 4°C	14 days	250 mls
Ammonia	P, G	Cool, 4°C, H_2SO_4 to pH < 2	28 days	500 mls
Biochemical oxygen demand	P, G	Cool, 4°C	48 hours	800 mls
Bromide	P, G	None Required	28 days	200 mls
Biochemical oxygen demand, carbonaceous	P, G	Cool, 4°C	48 hours	800 mls
Chemical oxygen demand	P, G	Cool, 4°C, H_2SO_4 to pH < 2	28 days	100 mls
Chloride	P, G	None Required	28 days	200 mls
Chlorine, total residual	P, G	None Required	Analyze Immediately	200 mls
Color	P, G	Cool, 4°C	48 hours	250 mls
Cyanide, total and amenable to chlorination	P, G	Cool, 4°C, NaOH to pH > 12, 0.6g/l ascorbic acid	14 days[6]	1,000 mls
Fluoride	P	None Required	28 days	100 mls
Hardness	P, G	HNO_3 to pH < 2, H_2SO_4 to pH < 2	6 months	100 mls
Hydrogen Ion (pH)	P, G	None Required	Analyze Immediately	100 mls
Kjeldahl and organic nitrogen	P, G	Cool, 4°C, H_2SO_4 to pH < 2	28 days	500 mls
Chromium VI	P, G	Cool, 4°C	24 days	500 mls
Mercury[7]	P, G	HNO_3 to pH < 2	28 days	500 mls
Metals[7], except Chromium VI and mercury	P, G	HNO_3 to pH < 2	6 months	500 mls
Nitrate	P, G	Cool, 4°C	48 hours	500 mls
Nitrate-nitrite	P, G	Cool, 4°C, H_2SO_4 to pH < 2	28 days	500 mls
Nitrite	P, G	Cool, 4°C	48 hours	800 mls
Oil and Grease	G	Cool, 4°C, H^2SO_4 to pH < 2	28 days	1000 mls
Organic carbon	P, G	Cool, 4°C, HCl or H_2SO_4 to pH < 2	28 days	100 mls
Orthophosphate	P, G	Filter Immediately, Cool 4°C	48 hours	200 mls
Oxygen, Dissolved Probe	G Bottle & Top	None Required	Analyze Immediately	Not Applicable
Phenols	G only	Cool, 4°C, H^2SO_4 to pH < 2	28 days	800 mls
Phosphorus (elemental)	P, G	Cool, 4°C	48 hours	2000 mls
Phosphorus, total	P, G	Cool, 4°C, H^2SO_4 to pH < 2	28 days	500 mls
Residue, total	P, G	Cool, 4°C	7 days	500 mls
Residue, Filterable	P, G	Cool, 4°C	7 days	500 mls
Residue, Nonfilterable (TSS)	P, G	Cool, 4°C	7 days	500 mls
Residue, Settleable	P, G	Cool, 4°C	48 hours	1000 mls
Residue, volatile	P, G	Cool, 4°C	7 days	500 mls
Specific conductance	P, G	Cool, 4°C	28 days	500 mls
Sulfate	P, G	Cool, 4°C	28 days	500 mls
Sulfide	P, G	Cool, 4°C add zinc acetate plus NaOH to ph > 9	7 days	250 mls
Sulfite	P, G	None Required	Analyze Immediately	250 mls
Surfactants	P, G	Cool, 4°C	48 hours	500 mls
Temperature	P, G	None Required	Analyze Immediately	Not Applicable
Turbidity	P, G	Cool, 4°C	48 hours	200 mls

Parameter Name	Container[1]	Preservation Technique[2,3]	Max. Holding Time[4]	Sample Vol. Recommended
Organic Tests[8]				
Purgeable halocarbons				
Purgeable aromatic hydrocarbons	G, Teflon-lined septum	Cool, 4°C, 0.008% $Na_2S_2O_3$[5]	14 days	40 mls
Acrolein and acrylonitrile	G, Teflon-lined septum	Cool, 4°C, 0.008% $Na_2S_2O_3$[5], HCl to pH2[9]	14 days	40 mls
Phenols[11]	G, Teflon-lined septum	Cool, 4°C, 0.008% $Na_2S_2O_3$[5], Adjust pH to 4-5	14 days	40 mls
Benzidines[11]	G, Teflon-lined cap	Cool, 4°C, 0.008% $Na_2S_2O_3$[5]	7 days until extraction. 40 days after extraction	2,000 mls
Phthalate esters[11]	G, Teflon-lined cap	Cool, 4°C, 0.008% $Na_2S_2O_3$[5]	7 days until extraction[13]	2,000 mls
Nitrosamines[11, 14]	G, Teflon-lined cap	Cool, 4°C	7 days until extraction. 40 days after extraction.	2,000 mls
PCB's,[11] acrylonitrile	G, Teflon-lined cap	Cool, 4°C, store in dark, 0.008% $Na_2S_2O_3$[5]	7 days until extraction. 40 days after extraction.	2,000 mls
Nitroaromatics and isophorone	G, Teflon-lined cap	Cool, 4°C	7 days until extraction. 40 days after extraction.	2,000 mls
Polynuclear aromatic hydrocarbons[11]	G, Teflon-lined cap	Cool, 4°C, 0.008% $Na_2S_2O_3$[5] store in dark	7 days until extraction. 40 days after extraction.	2,000 mls
Haloethers[11]	G, Teflon-lined cap	Cool, 4°C, 0.008% $Na_2S_2O_3$[5] store in dark	7 days until extraction. 40 days after extraction.	2,000 mls
Chlorinated hydrocarbons[11]	G, Teflon-lined cap	Cool, 4°C, 0.008% $Na_2S_2O_3$[5]	7 days until extraction. 40 days after extraction.	2,000 mls
TCDD[11]	G, Teflon-lined cap	Cool, 4°C	7 days until extraction. 40 days after extraction.	2,000 mls
	G, Teflon-lined cap	Cool, 4°C, 0.008% $Na_2S_2O_3$[5]	7 days until extraction. 40 days after extraction.	2,000 mls
Pesticides[11]	G, Teflon-lined cap	Cool, 4°C, pH 5-9[15]	7 days until extraction. 40 days after extraction.	1,000 mls
Radiological Tests:				
Alpha, beta and radium	P, G	HNO_3 to pH<2	6 months	3,000 mls

COMMENTS

NOTE: Container, preservation procedure, and maximum holding time are adapted from 40 CFR 136, Table II, Required Containers, Preservation Techniques and Holding Time, dated 1-4-85. Sample Volume Recommended is a consensus of recommendations from analytical laboratories used for analyses.

1. Polyethylene (P) or Glass (G).
2. Sample preservation should be performed immediately upon sample collection. For composite chemical samples each aliquot should be preserved at the time of collection. When use of an automated sampler makes it impossible to preserve each aliquot, then chemical samples may be preserved by maintaining at 4° C until compositing and sample splitting is completed.
3. When any sample is to be shipped by common carrier or sent through the United States Mail, it must comply with the Department of Transportation Hazardous Materials Regulations (49 CFR Part 172). The person offering such material for transportation is responsible for ensuring such compliance. For the preservation requirements of Table II, the Office of Hazardous Materials, Materials Transportation Bureau, Department of Transportation has determined that the Hazardous Materials Regulations do not apply to the following materials: Hydrochloric acid (HCl) in water solutions at concentrations of 0.04% by weight or less (pH about 1.96 or greater); Nitric acid (HNO_3) in water solutions at concentrations of 0.15% by weight or less (pH about 1.62 or greater); Sulfuric acid (H_2SO_4) in water solutions at concentrations of 0.35% by weight or less (pH about 1.15 or greater); and Sodium hydroxide (NaOH) in water solutions at concentrations of 0.08% by weight or less (pH about 12.30 or less).
4. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid. Samples may be held for longer periods only if the permittee, or monitoring laboratory, has data on file to show that the specific types of samples under study are stable for the longer time, and has received a variance from the Regional Administrator under section 136.3(e). Some samples may not be stable for the maximum time period given in the table. A permittee, or monitoring laboratory, is obligated to hold the sampled for a shorter time if knowledge exists to show that this is necessary to maintain sample stability. See paragraph 136.3(e) for details.
5. Should only be used in the presence of residual chlorine.
6. Maximum holding time is 24 hours when Sulfide is present. Optionally all samples may be tested with lead acetate paper before pH adjustment in order to determine if Sulfide is present. If Sulfide is present, it can be removed by the addition of cadmium nitrate powder until a negative spot test is obtained. The sample is filtered and then NaOH is added to pH 12.
7. Samples should be filtered immediately on-site before adding preservative for dissolved metals.
8. Guidance applies to samples to be analyzed by GC, LC, or GC/MS for specific compounds.
9. Sample receiving no pH adjustment must be analyzed within seven days of sampling.
10. The pH adjustment is not required if acrolein will not be measured. Samples for acrolein receiving no pH adjustment must be analyzed within three days of sampling.
11. When the extractable analytes of concern fall within a single chemical category, the specified preservative and maximum holding times should be observed for optimum safeguard of sample integrity. When the analytes of concern fall within two or more chemical categories, the sample may be preserved by cooling to 4° C, reducing residual chlorine with 0.008% sodium thiosulfate, storing in the dark, and adjusting the pH to 6-9; samples preserved in this manner may be held for seven days before extraction and for 40 days after extraction. Exceptions to this optional preservation and holding time procedure are noted in footnote 5 (re: the requirement for thiosulfate reduction of residual chlorine), and footnotes 12, 13 (re: the analysis of benzidine).
12. 1,2-diphenylhydrazine is likely to be present, adjust the pH of the sample to 4.0 plus or minus 0.2 to prevent rearrangement to benzidine.
13. Extracts may be stored up to seven days before analysis if storage is conducted under an inert (oxidant-free) atmosphere.
14. For the analysis of diphenylnitrosamine, add 0.008% $Na_2S_2O_3$ and adjust pH to 7-10 with NaOH within 24 hours of sampling.
15. The pH adjustment may be performed upon receipt at the laboratory and may be omitted if the samples are extracted within 72 hours of collection. For the analysis of aldrin, add 0.008% $Na_2S_2O_3$.

CITY OF BRENTWOOD SEWER PERMIT AND REQUIREMENTS

Appendix 2

City of Brentwood

5211 MARYLAND WAY • BRENTWOOD, TENNESSEE 37027 • PHONE (615) 371-0060
MAILING ADDRESS: P.O. BOX 788 • BRENTWOOD, TN 37024-0788

JOHN C. GRISSOM
DIRECTOR, WATER AND SEWER DEPARTMENT

WATER AND SEWER DEPARTMENT
1750 GEN. GEORGE PATTON DRIVE
BRENTWOOD, TN 37027
TELEPHONE (615) 371-0080
FAX (615) 371-2225

May 29, 1992

Mr. Ralph E. Mosely
Environmental Consultant
Mosely and Associates
232 Genesco Park
Nashville, Tennessee 37217

RE: Genesco Inc. - Kennon Site
Wastewater Discharge Permit -
Renewal of Old Permit

Dear Mr. Mosely:

Thank you for the application which was mailed to me on March 1992 for renewal of the Wastewater Discharge Permit for the Kennon site.

Application has been approved for the next two years.

Copies of the permit has been forwarded to others.

Please call me if there are any questions.

Sincerely,

Larry Moore

Larry Moore

c: Ms. Brenda Apple, Depart. of Environment and Conser.
Mr. Jim Kirby, Hart-Freeland-Roberts
Mr. Jim Hale, Genesco
Mr. Bob Carnahan, Metro

DEPARTMENT OF WATER AND SEWERAGE SERVICES
5211 Maryland Way
Brentwood, Tennessee 37212

Permit No. 92-001

PERMIT

FOR THE DISCHARGE OF INDUSTRIAL WASTES

In accordance with the provisions of Tennessee Code Annotated Section 69-3-105 and Regulations promulgated pursuant thereto; and the CITY OF BRENTWOOD, Ordinance No. 81-25.

PERMISSION IS HEREBY GRANTED TO

GENESCO, INC.
232 Genesco Park
Nashville, Tennessee 37217

FOR THE DISCHARGE OF

A Groundwater Collector System from the
Kennon Farm disposal site under remediation

In accordance with the application filed on May 28, 1992 in the City Hall of the City of Brentwood, Tennessee, and in conformity with approved plans, specifications and other data submitted to the City in support of the above application, all of which are filed with and considered as a part of this permit, together with the following named conditions and requirements.

GENESCO, INC. shall comply with the rules and regulations of Metro Ordinance No. 080-343, an Ordinance establishing new criteria for use of the publicly owned treatment works of Nashville and Davidson County, Tennessee.

Issued this First day of June 1992

Michael W. Walker
City Manager, City of Brentwood, TN

Expire Thirty-First day of May 1994

John [illegible]
Director, Dept. of Water & Sewerage

Hart Freeland Roberts

March 15, 1990

Mr. James W. O'Brien
Vice President
Genesco, Inc.
232 Genesco Park
Nashville, Tennessee 37217

RE: PERMIT NO. 89-001
City of Brentwood, Tennessee

Dear Mr. O'Brien:

The Metro Government has requested the enclosed rules and regulations should be attached to your Discharge Permit No. 89-001 that was issued to Genesco by the City of Brentwood.

Please contact me if you have any questions.

Yours truly,

HART-FREELAND-ROBERTS, INC.

James G. Kirby

James G. Kirby, P.E.

JGK:jm

pc: Mr. Ralph Mosely w/copy of attached
Mosely & Associates, Inc.
232 Genesco Park
Nashville, TN 37217

Mr. John Grissom

Please respond to:
P O Box 120837 • 2525 ... Road • Suite 500 • Nashville TN 37212-0837 • (615) 383-6550

PART I

A. LIMITATIONS ON WASTEWATER STRENGTH AND MONITORING REQUIREMENTS

No permittee shall discharge wastewater in excess of the concentration set forth in the table below unless: (1) an exception has been granted the user under the provisions of Section 40-1-187 Part II of the Metropolitan Code or, (2) the wastewater discharge permit of the user provides as a special permit condition a higher interim concentration level in conjunction with a requirement that the user construct a pretreatment facility or institute changes in operation and maintenance procedures to reduce the concentration of pollutants to levels not exceeding the standards set forth in the table within a fixed period of time.

PARAMETER	MAXIMUM CONCENTRATION mg/L (FLOW PROPORTIONAL COMPOSITE SAMPLE	MAXIMUM INSTANTANEOUS CONCENTRATION mg/L (GRAB SAMPLE)
Ammonia Nitrogen	30.0	60.0
Biochemical Oxygen Demand	300.0	600.0
Chemical Oxygen Demand	500.0	1000.0
Suspended Solids	325.0	650.0
Arsenic (As)	1.0	2.0
Cadmium (Cd)	1.0	2.0
Total Toxic Organics (TTO)	50.0	100.0
Chromium - Total (Cr)	5.0	10.0
Chromium - Hexavalent (Cr6)	0.05	0.1
Copper (Cu)	5.0	10.0
Cyanide (CN-)	2.0	4.0
Lead (Pb)	1.5	3.0
Mercury (Hg)	0.1	0.2
Nickel (Ni)	5.0	10.0
Selenium (Se)	1.0	2.0
Silver (Ag)	5.0	10.0
Zinc (Zn)	5.0	10.0
Oil & Grease (Freon Extractable)	50.0	100.0

1. CRITERIA TO PROTECT THE TREATMENT PLANT INFLUENT

The Director shall monitor the treatment works influent for each parameter in the following table. The Municipal User shall be subject to the reporting and monitoring requirements set forth in this permit as to these parameters. In the event that the influent at the treatment works reaches or exceeds the levels established by said table, the Director shall initiate technical studies to determine the cause of the influent violations, and shall initiate such remedial measures as are necessary, including, but not limited to, the establishment of new or revised pretreatment levels for these parameters. The Director may also change any of these criteria in the event the POTW effluent standards are changed or in the event changes are deemed advisable for effective operation of the POTW.

2. PARAMETER: MAXIMUM CONCENTRATIONS (ppm)/FLOW PROPORTIONAL COMPOSITE SAMPLE

	CWWTP	DCWWTP	WCWWTP
Ammonia	30.0	30.0	10.2
Arsenic	0.1	0.1	0.011
Boron	2.0	2.0	0.3
Cadmium	0.007	0.0016	0.0011
Calcium	2500.0	2500.0	2500.0
Chromium Total	1.5	0.51	0.51
Copper	1.0	0.52	0.52
Iron	0.17	0.07	0.07
Lead	5.0	5.0	1.0
Magnesium	0.23	0.23	0.23
Manganese	50.0	---	6.8
Mercury	11.8	11.8	11.8
Nickel	0.004	0.0009	0.0009
Phenols	0.52	0.32	0.32
Pyrene	0.6	0.03	0.03
Silver	0.0002	0.0002	0.0002
Sodium	6.2	6.2	6.2
Sulfate	---	---	23.8
Sulfide	500.0	---	---
Zinc	---	---	0.34
Butyl Benzylphthalate	2.7	0.43	0.43
Di-N Butyl Phthalate	0.003	0.003	0.003
Di-N Octyl Phthalate	0.03	0.03	0.03
2,4,5 TP Silvex	0.006	0.006	0.006
	0.01	0.01	0.01

3. PREVENTION OF ACCIDENTAL DISCHARGES

All Municipal Users shall provide such facilities and institute such procedures as are reasonably necessary to prevent or minimize the potential for accidental discharge into the POTW of waste regulated by this permit from liquid or raw material storage areas, from truck and rail car loading and unloading areas, from inplant transfer or processing and materials handling areas, from diked areas or holding ponds of any waste regulated by this permit. The permittee shall notify the POTW immediately by telephone of any slug loading, as defined by Metropolitan Code Section 40-1-186.

B. MONITORING PROCEDURES

1. Samples and measurements taken in compliance with the monitoring requirements of this permit shall be representative of the volume and nature of the monitored discharge during a normal production day and shall be taken as follows:

   a. Be performed on FLOW-PROPORTIONAL SAMPLES REPRESENTATIVE OF THE TOTAL WASTEWATER FLOW discharge to the CITY OF BRENTWOOD Sewerage System with the maximum time interval between samples being no longer than sixty (60) minutes.

   b. Be conducted in accordance with U. S. Environmental Protection Agency protocol. The results must be reported to the lowest detectable limit of the methodology.

   c. Provide the flow rate for which the results are indicative to the nearest 100 gallons per day.

2. SAMPLE LOCATION

   The samples will be collected at a manhole as shown on the plans prior to connection to the Brentwood Collection System.

3. TEST PROCEDURES

   a. Test procedures for the analysis of pollutants shall conform to regulations published pursuant to Section 304 (h) of the Clean Water Act of 1977, under which such procedures may be required.

   b. Unless otherwise noted in the permit, all pollutants parameters shall be determined according to methods prescribed in Title 40, CFR, Part 136, as amended, promulgated pursuant to Section 304 (h) of the Act.

   c. GENESCO, INC. must sample and analyze SEMI-ANNUALLY for the following parameters:

      FLOW, BIOCHEMICAL OXYGEN DEMAND, SUSPENDED SOLIDS, OIL & GREASE, pH, AMMONIA, IRON*, ZINC*, CADMIUM*, AND MAGNESIUM*.

*INDICATES PARAMETERS OF CONCERN AT THE RECEIVING P.O.T.W.

4. MAINTENANCE OF RECORDS

Any Municipal User subject to the reporting requirements established in this section, shall maintain records of all information resulting from any monitoring activities required by this section. Such records shall include for all samples:

(a) The date, exact place, method, and time of sampling and the names of the persons taking the samples;

(b) The date analyses were performed.

(c) Who performed the analyses;

(d) The analytical techniques/method used; and

(e) The results of such analyses.

Any Municipal User required by this paragraph to submit a similar report to the State of Tennessee or EPA under the provisions of 40 CFR 403.12, may submit to the Director a copy of said report in lieu of a separate report to the Director provided that all information required by this permit is included in the report to the State of Tennessee or EPA.

5. RECORDS RETENTION

Any Municipal User subject to the reporting requirements established in this permit shall be required to retain for a minimum of four (4) years any records of monitoring activities and results (whether or not such monitoring activities are required by this permit) and shall make such records available for inspection and copying by the Department of Water and Sewerage Services, the Division of Water Quality Control-Tennessee Department of Health and Environment, or the Environmental Protection Agency. This period of retention shall be extended during the course unresolved litigation regarding the permittee or when requested by the Department of Water and Sewerage Services, the Division of Water Quality Control-Tennessee Department of Health and Environment, or the Environmental Protection Agency.

6. DURATION OF THE PERMIT

Wastewater discharge permits shall be issued for a period stated on the permit. Notwithstanding the foregoing, users becoming subject to a National Pretreatment Standard shall apply for new permits on the effective date of such National Pretreatment Standards. A user must apply in writing for a renewal permit within the period of time not more than ninety (90) days and not less than thirty (30) days prior to expiration of the current permit. Provided further, that limitations or conditions of a permit are subject to modification or changes due to changes in applicable water quality standards, changes in Metro's NPDES permit, changes in the limitations of wastewater strength or POTW protection criteria, changes in other applicable law or regulation, or for other just causes.

7. TRANSFER OF A PERMIT

Wastewater discharge permits are issued to a specific user for a specific operation. A wastewater discharge permit shall not be reassigned, transferred or sold to a new owner, new user, or for different premises, unless approved by the Department of Water and Sewerage Services.

C. REPORTING

1. MONITORING RESULTS

Monitoring results shall be submitted SEMI-ANNUALLY using Discharge Monitoring Report Forms supplied by the City. A copy should be retained for the permittee's files. Discharge Monitoring Reports must be signed and certified by a principal municipal executive officer or ranking elected official, or his duly authorized representative. Such authorization must be submitted in writing and must be submitted in writing and must explain the duties and responsibilities of the authorized representative. Discharge Monitoring Reports and any communication regarding compliance with the conditions of this permit must be sent to:

CITY OF BRENTWOOD, TENNESSEE
P. O. Box 788
Brentwood, Tennessee 37024-0788

Attn: Mr. John Grissom

2. REPORTING SCHEDULE

THE FIRST DISCHARGE MONITORING REPORT IS DUE March 1, 1990. ADDITIONAL MONITORING REPORTS MUST BE RECEIVED IN THIS OFFICE ON OR PRIOR TO SEPTEMBER 1, 1900; MARCH 1, 1990; SEPTEMBER 1, 1991; ETC. UNTIL THIS PERMIT EXPIRES.

3. ADDITIONAL MONITORING BY PERMITTEE

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Discharge Monitoring Report Form. Such increased frequency shall also be indicated.

4. FALSIFYING REPORTS

Knowingly, making any false statement on any report required by this permit may result in the imposition of criminal penalties as provided for in Section 309 of the Federal Water Pollution Control Act, as amended.

A. *NATIONAL PRETREATMENT STANDARDS*

Certain Municipal Users are now or hereafter shall become subject to National Pretreatment Standards promulgated by the Environmental Protection Agency specifying quantities or concentrations of pollutants or pollutant properties which may be discharge into the POTW. All Industrial Users subject to a National Pretreatment Standard shall comply with all requirements of such standard, and shall also comply with any additional or more stringent limitations contained in their permit. Compliance with National Pretreatment Standards for existing sources subject to such standards or for existing sources which hereafter become subject to such standards shall be within three (3) years following promulgation of the standards, unless a shorter compliance time is specified in the standard. Compliance with National Pretreatment Standards for new sources shall be required upon promulgation of the standard. Except, where, expressly, authorized by an applicable National Pretreatment Standard, no Industrial User shall increase the use of process water or in any way attempt to dilute a discharge as a partial or complete substitution for adequate treatment to achieve compliance with such standard.

B. PROHIBITIONS ON STORM DRAINAGE AND GROUND WATER

Storm water, ground water, rain water, street drainage, roof top drainage, basement drainage, sub-surface drainage, or yard drainage, if unpolluted shall not be discharged through direct or indirect connections to a community sewer unless a storm sewer or other reasonable alternative for removal of such drainage does not exist, and then only when such discharge is permitted by the user's wastewater discharge permit and the appropriate fee is paid for the volume thereof.

C. LIMITATION ON RADIOACTIVE WASTE

No permittee shall discharge or permit to be discharge any radioactive waste into a community sewer except:

(1) When the user is authorized to use radioactive material by the Tennessee Department of Public Health or the Nuclear Regulatory Commission;

(2) When the waste is discharged is strict conformity with applicable laws and regulations of the aforementioned agencies, or any other agency having jurisdiction; and

(3) When a copy of permits received from said regulatory agencies have been filed with the Department of Water and Sewerage Services.

D. PROHIBITIVE DISCHARGE STANDARDS

(1) No permittee shall introduce into the publicly owned treatment works any of the following pollutants which acting either alone or in conjunction with other substances present in the POTW interfere with the operation of the POTW as follows:

a. Pollutants which could create a fire or explosion hazard in the POTW;

b. Pollutants which cause corrosive structural damage to the POTW, but in no case discharges with a pH lower than 5.0 or higher than 10.0;

c. Solid or viscous pollutants in amounts which cause obstruction to the flow of the sewers, or other interference with the operation of or which cause injury to the POTW, including waxy or other materials which tend to coat and clog a sewer line or other appurtenances thereto;

d. Any pollutant, including oxygen demanding pollutants (BOD, etc.) released in a discharge of such volume or strength as to cause interference in the POTW;

e. Heat in amounts which will inhibit biological activity in the POTW resulting in interference, but in no case heat in such quantities that the temperature at the treatment works influent exceeds 40 degrees Centigrade (104 degrees Fahrenheit). Unless a higher temperature is allowed in the user's wastewater discharge permit, no user shall discharge into any sewer line or other appurtenance of the POTW wastewater with a temperature exceeding 65.5 degrees Centigrade (150 degrees Fahrenheit).

The aforesaid pollutants represent a general description of harmful or dangerous conditions, and are in addition to such specific pollutants as may be identified and added from time to time to the Industrial User's Permit.

(2) The permittee shall notify the Industrial Compliance Section on any of the following changes in user discharge to the system no later than 180 days prior to change of discharge:

a. New introductions into such works of pollutants from any source which would be a new source, if such source were discharging pollutants.

b. New introductions of pollutants into such works from a source which would be subject to the Sewer Use Ordinance if it were discharging such pollutants.

c. A substantial change in volume or character or pollutants being discharged into such works at the time the permit is issued.

(3) This notice will include information on the quality and quantity of the wastewater introduced by the new source into the publicly owned treatment works, and on any anticipated impact on the effluent discharged from such works.

PART III

The City of Brentwood shall establish and maintain a Pretreatment Program in accordance with 40 CFR 403 with all changes and corrections. The City of Brentwood, as part of their Program, shall permit and sample or cause to be sampled, in accordance with current protocol; (1) all Industries covered by an enacted or proposed Categorical Pretreatment Standard; (2) all Industries with wastewater flows or strength of compatible pollutants, that would be considered significant contributors to their system. The City of Brentwood shall have legal authority established to enforce their Pretreatment Program. The City of Brentwood shall submit their report to the Metropolitan Department of Water Services, Industrial Compliance Section on the first of September and the first of March, semi-annually, consisting of; (1) the current State of Tennessee format for Pretreatment reporting, (2) results of sampling performed by the City of Brentwood, in accordance with their Trunk and Treatment Agreement with the Metropolitan Government and/or requirements of this permit.

The City of Brentwood's Pretreatment Submittal shall be reviewed by Metro Water Services and transmitted to the State of Tennessee as part of Metro Water Services Pretreatment Submittal.

Metro Water Services shall be the Control Authority for the City of Brentwood relative to all aspects of Pretreatment reporting and enforcement. Metro Water Services shall have the right to audit and/or inspect the City of Brentwood's Pretreatment Program at any time during the effective dates of this permit.

PERMIT SUMMARY

THE CITY OF BRENTWOOD SHALL SAMPLE AND ANALYZE SEMI-ANNUALLY FOR THE FOLLOWING PARAMETERS:

FLOW, BIOCHEMICAL, OXYGEN DEMAND, SUSPENDED SOLIDS, OIL & GREASE, AMMONIA, pH, LEAD, ZINC, CADMIUM, IRON, AND MAGNESIUM

GROUNDWATER SAMPLING SCHEDULE

Appendix 3

TABLE 2-3

GROUNDWATER SAMPLING SCHEDULE
Kennon Site - Brentwood, Tennessee

I. KENNON SITE - WELL MONITORING PROGRAM

Quarterly samples of selected monitor wells analyzed for Organic Priority Pollutants - Volatiles, and annual sample for full Priority Pollutants List, less pesticides and PCB's. These samples are required until the site is de-listed by TDEC.

II. CITY OF BRENTWOOD SEWER SAMPLING PROGRAM

Quarterly sample taken at the manhole to City of Brentwood sewer system for Organic Priority Pollutants - Volatiles, with semi-annual Baseline Analysis for the "METRO" list. These are required as long as the site is connected to the City of Brentwood sewer system.

III. SOURCE REMOVAL PHASE - GROUNDWATER DISCHARGE MONITORING PROGRAM

Weekly samples of discharge to sewer for Organic Priority Pollutants - Volatiles, and monthly Baseline Analysis for the "METRO" List required during the excavation of source material in 1990 and 1991.

WATER SAMPLING SCHEDULE FOR THE KENNON SITE

1993 - 1995

SAMPLE COLLECTION PERIOD	SAMPLING LOCATIONS: Intermediate Monitoring Wells			SAMPLING LOCATIONS: Downgradient Monitoring Wells				SEWER	TEST REQUIRED
	UN-1	UN-2	UN-5	UN-3	UN-4	W-10	W-25		
1st Quarter - 1993								X	Priority Pollutants-Volatiles
2nd Quarter - 1993	X			X		X		X	Priority Pollutants-Volatiles; "Metro List" for sewer
3rd Quarter - 1993								X	Priority Pollutants-Volatiles
4th Quarter - 1993	X	X	X	X	X	X	X	X	Full Priority Pollutants List (less pesticides and PCB's) and "Metro List"
1st Quarter - 1994								X	Priority Pollutants-Volatiles
2nd Quarter - 1994	X			X		X		X	Priority Pollutants-Volatiles; "Metro List" for sewer
3rd Quarter - 1994								X	Priority Pollutants-Volatiles
4th Quarter - 1994	X	X	X	X	X	X	X	X	Full Priority Pollutants List (less pesticides and PCB's) and "Metro List"
1st Quarter - 1995								X	Priority Pollutants-Volatiles
2nd Quarter - 1995	X			X		X		X	Priority Pollutants-Volatiles; "Metro List" for sewer
3rd Quarter - 1995								X	Priority Pollutants-Volatiles
4th Quarter - 1995	X	X	X	X	X	X	X	X	Full Priority Pollutants List (less pesticides and PCB's) and "Metro List"

WATER SAMPLING SCHEDULE FOR THE KENNON SITE

1996 - 1998

SAMPLE COLLECTION PERIOD	SAMPLING LOCATIONS							SEWER	TEST REQUIRED
	Intermediate Monitoring Wells			Downgradient Monitoring Wells					
	UN-1	UN-2	UN-5	UN-3	UN-4	W-10	W-25		
1st Quarter - 1996								X	Priority Pollutants-Volatiles
2nd Quarter - 1996	X			X		X		X	Priority Pollutants-Volatiles; "Metro List" for sewer
3rd Quarter - 1996								X	Priority Pollutants-Volatiles
4th Quarter - 1996	X	X	X	X	X	X	X	X	Full Priority Pollutants List (less pesticides and PCB's) and "Metro List"
1st Quarter - 1997								X	Priority Pollutants-Volatiles
2nd Quarter - 1997	X			X		X		X	Priority Pollutants-Volatiles; "Metro List" for sewer
3rd Quarter - 1997								X	Priority Pollutants-Volatiles
4th Quarter - 1997	X	X	X	X	X	X	X	X	Full Priority Pollutants List (less pesticides and PCB's) and "Metro List"
1st Quarter - 1998								X	Priority Pollutants-Volatiles
2nd Quarter - 1998	X			X		X		X	Priority Pollutants-Volatiles; "Metro List" for sewer
3rd Quarter - 1998								X	Priority Pollutants-Volatiles
4th Quarter - 1998	X	X	X	X	X	X	X	X	Full Priority Pollutants List (less pesticides and PCB's) and "Metro List"

WATER SAMPLING SCHEDULE FOR THE KENNON SITE

1999 - 2001

SAMPLE COLLECTION PERIOD	SAMPLING LOCATIONS: Intermediate Monitoring Wells			SAMPLING LOCATIONS: Downgradient Monitoring Wells				SEWER	TEST REQUIRED
	UN-1	UN-2	UN-5	UN-3	UN-4	W-10	W-25		
1st Quarter - 1999								X	Priority Pollutants-Volatiles
2nd Quarter - 1999	X			X		X		X	Priority Pollutants-Volatiles; "Metro List" for sewer
3rd Quarter - 1999								X	Priority Pollutants-Volatiles
4th Quarter - 1999	X	X	X	X	X	X	X	X	Full Priority Pollutants List (less pesticides and PCB's) and "Metro List"
1st Quarter - 2000								X	Priority Pollutants-Volatiles
2nd Quarter - 2000	X			X		X		X	Priority Pollutants-Volatiles; "Metro List" for sewer
3rd Quarter - 2000								X	Priority Pollutants-Volatiles
4th Quarter - 2000	X	X	X	X	X	X	X	X	Full Priority Pollutants List (less pesticides and PCB's) and "Metro List"
1st Quarter - 2001								X	Priority Pollutants-Volatiles
2nd Quarter - 2001	X			X		X		X	Priority Pollutants-Volatiles; "Metro List" for sewer
3rd Quarter - 2001								X	Priority Pollutants-Volatiles
4th Quarter - 2001	X	X	X	X	X	X	X	X	Full Priority Pollutants List (less pesticides and PCB's) and "Metro List"

NOTE: The above schedule continues until the site is de-listed by the Tennessee Department of Environment and Conservation.

WATER SAMPLING LOG

MOSELY & ASSOCIATES, INC.
Water Sampling Log

Project Name/No:

Site Location:

Sample Well/Point:

Weather:

Time Sampling Began: Time Sampling Completed: Date:

EVACUATION DATA - WELL SAMPLING ONLY

Description of Measuring Point:

Listed Elevation of MP (ft msl):

Listed Surface Elevation (ft msl):

Height of MP Above Land Surface:

Listed Depth of Boring (ft):

Diameter of Casing:

Gallons per Foot in Casing:

Evacuation Method:

Total Sounded Depth of Well Below MP:

Sounded Depth of Water Below MP:

Height of Water Column in Well:

Gallons Pumped/Bailed Prior to Sampling:

SAMPLING DATA/FIELD PARAMETERS

Color: Odor: Appearance: Temperature:

Other (Specification; OVA; HNU; etc.):

Specific Conductance, umhos/cm: pH:

Sampling Method and Material:

SAMPLE CONTAINER DESCRIPTION

Laboratory Supplying Containers:

Sample Container/Vial Number Type Container Preservation

Remarks:

Sampling Personnel:

Well Casing Volumes

GAL/FT	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.065
	1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46

R 9-13-93

CHAIN OF CUSTODY RECORD

CHAIN-OF-CUSTODY RECORD

Page ______ of ______

Location: ______________________

Laboratory: ______________________

Project/Number ______________________

Shipping Container ID: ______________________

Sampler(s) ______________________

____

SAMPLE CONTAINER DESCRIPTION

SAMPLE IDENTITY	Date Sampled													Total	Remarks

Total No. of Containers ______

Relinquished by: ______________ Organization: ______________
Date: ________ Time: ________

Received by: ______________ Organization: ______________
Date: ________ Time: ________

Relinquished by: ______________ Organization: ______________
Date: ________ Time: ________

Received by: ______________ Organization: ______________
Date: ________ Time: ________

Relinquished by: ______________ Organization: ______________
Date: ________ Time: ________

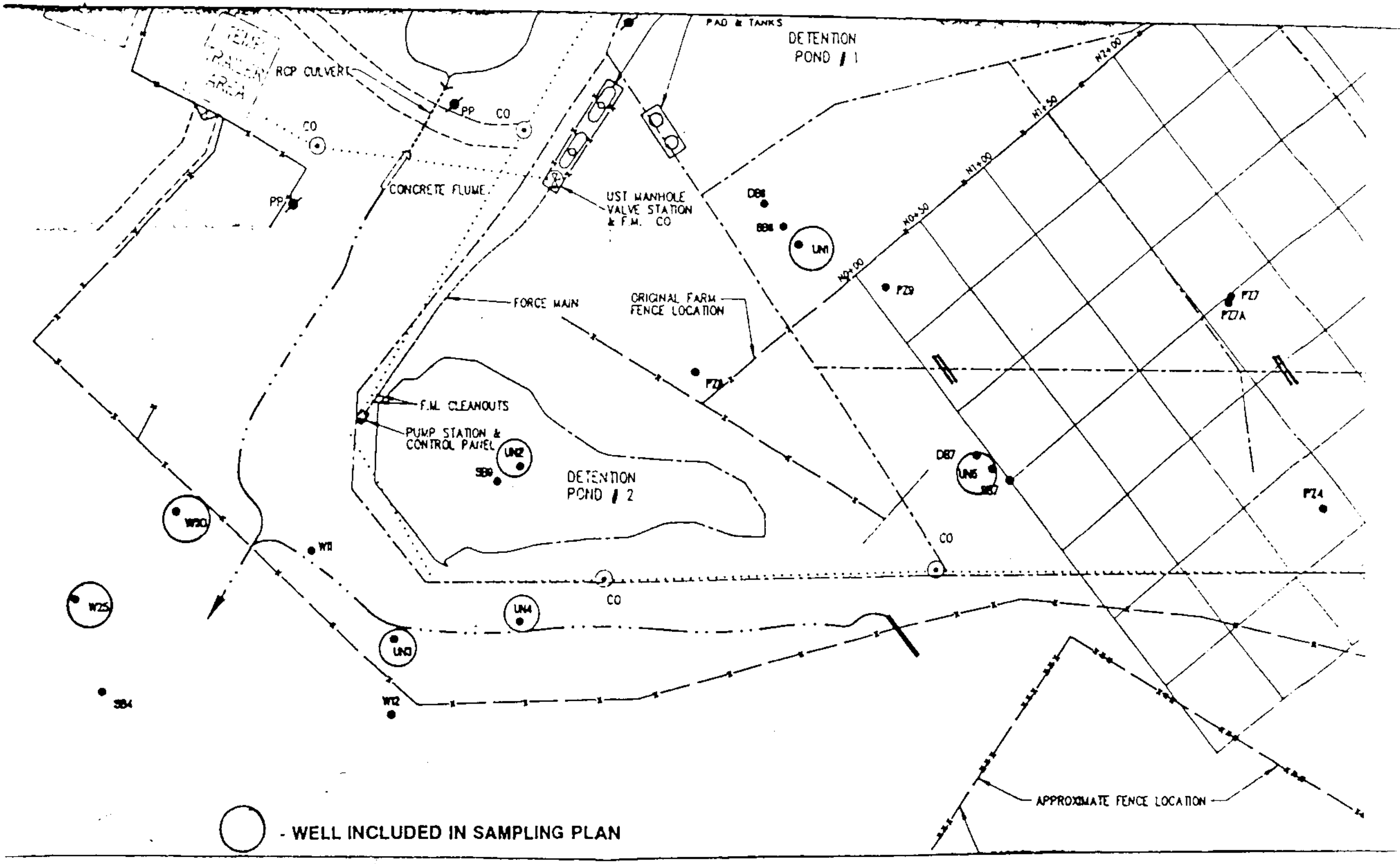
Received by: ______________ Organization: ______________
Date: ________ Time: ________

Delivery Method: ______________________ (attach shipping bill, if any)

1/86

(Use extra sheets, if necessary)

LOCATION OF MONITORING WELLS IN SAMPLING PROGRAM



MAP DEPICTING LOCATIONS OF WELLS TO BE SAMPLED

LIST OF PRIORITY POLLUTANTS TO BE ANALYZED

"METRO LIST"

Flow	Ammonia
Biochemical Oxygen Demand (BOD_5)	Iron
Suspended Solids (SS)	Zinc
Oil and Grease (O & G)	Cadmium
pH	Magnesium

EPA PRIORITY POLLUTANTS LIST
(Less Pesticides and PCB's)

ORGANIC

Volatiles

Benzene
Bromoform
Carbon tetrachloride
Chlorobenzene
Chlorodibromomethane
Chloroethane
2-Chloroethylvinyl ether
Chloroform
Dichlorobromomethane
1,1-Dechloroethane
1,2-Dichloroethane
1,2-Dichloroethylene
1,2-Dichloropropane
1,3-Dichloropropene
Ethylbenzene
Methyl Bromide
Methyl chloride
Methylene chloride
1,1,2,2-Tetrachloroethane
Tetrachloroethylene
Toluene
Trans-1,2-dichloroethylene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichloroethylene
Vinyl chloride

Acid and Base/Neutral Extractables

2-Chlorophenol
2,4-Dichlorophenol
2,4-Dimethylphenol
4,6-Dinitro-o-cresol
2,4-Dinitrophenol
2-Nitrophenol
4-Nitrophenol
P-chloro-m-cresol
Pentachlorophenol
Phenol
2,4,6-Trichlorophenol
Acenaphthene
Acenaphthylene
Anthracene
Benzidine
Benzo(a)anthracene
Benzo(a)pyrene
Benzo(b)fluoranthene
Bis-2-chloroethoxymethane
Bis(2-chloroethyl) ether
Bis(2-chloroisopropyl) ether
Bis(2-ethylhexyl) phthalate
4-Bromophenyl phenyl ether
Butyl benzyl phthalate
2-Chloronaphthalene
4-Chlorophenyl phenyl ether
Chrysene

Acid and Base/Neutral Extractables (Cont.)

Dibenz(a,h)anthracene
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
3,3-Dichlorobenzidine
Diethyl phthalate
Di-n-butyl phthalate
2,4-Dinitrotoluene
2,6-Dinitrotoluene
Di-n-octyl phthalate
1,2-Diphenyl-hydrazine
Fluoranthene
Fluorene
Hexachlorobenzene
Hexachlorobutadiene
Hexachlorocyclopentadiene
Hexachloroethane
Indeno(1,2,3-cd)pyrene
Isophorone
Naphthalene
Nitrobenzene
N-nitrosodimethylamine
N-nitrosodi-n-propylamine
N-nitrosodiphenylamine
Phenanthrene
Pyrene
1,2,4,-Trichlorobenzene

INORGANIC/OTHER

Antimony
Arsenic
Asbestos
Beryllium
Cadmium
Chromium
Copper
Cyanide
Lead
Mercury
Nickel
Phenols
Selenium
Silver
Thallium
Zinc

STATUS, CONSTRUCTION DETAILS AND LOCATION OF WELLS

STATUS OF WELLS - KENNON SITE

A total of 56 groundwater monitoring wells were drilled on the Kennon property. Many of the wells were designed and used during the initial investigation activities on the property; others were designed for use as groundwater monitoring wells. Several of the wells have been damaged by farm equipment (i.e., W-27, SB-12, W-28, W-17, W-19) and others are screened in extremely low permeability zones and do not produce sufficient water for sampling purposes (e.g., PZ-1, PZ-7A, W-20, W-21, W-22, W-18, W-13, W-14, SB-10, SB-12, SB-13).

The following Status of Wells Report lists all wells and describes those proposed to be retained in the sampling program, as well as those proposed to be closed. The map and construction details charts that follow contain additional information relative to the Kennon site wells.

It is proposed that those wells identified as unsuitable for sampling be closed in 1994 or 1995. The remainder of the wells would either be included in the groundwater sampling program or available for alternates, if needed, for the program, and would be closed as a part of site de-listing procedures when specified by TDEC.

Well closure will follow Tennessee Rule 1200-4-10, Well Construction and Abandonment Standards, with the exception of 1200-4-10-.09(b)3, which specifies well chlorination prior to sealing. Since this would introduce chlorinated hydrocarbons into the shallow aquifer which might interfere with subsequent groundwater analysis, this requirement is not deemed appropriate for this site.

STATUS OF WELLS
Kennon Site - Brentwood, Tennessee

Well Number	Status	Reason
DB1	Will Be Closed	Upgradient, too deep for meaningful sample.
DB2	Will Be Closed	Upgradient, too deep for meaningful sample.
DB3	Will Be Closed	Upgradient, too deep for meaningful sample.
DB4	Will Be Closed	Too deep for meaningful sample.
DB5	Will Be Closed	Too deep for meaningful sample.
DB6	Will Be Closed	Too deep for meaningful sample.
DB7	Will Be Closed	Too deep for meaningful sample.
DB8	Will Be Closed	Too deep for meaningful sample.
PZ1	Will Be Closed	None or limited recovery.
PZ2	Will Be Closed	Upgradient of site.
PZ3	Will Be Closed	Upgradient of site.
PZ4	Remain Open	Alternate for UN5.
PZ5	Will Be Closed	Upgradient of site.
PZ6	Will Be Closed	Upgradient of site.
PZ7	Remain Open	Alternate for UN5.
PZ7A	Will Be Closed	None or limited recovery.
PZ8	Remain Open	Alternate for UN1, UN9
PZ9	Remain Open	Alternate for UN1, UN9
SB1	Will Be Closed	Upgradient of site.
SB2	Will Be Closed	Upgradient of site.
SB3	Will Be Closed	Upgradient of site.
SB4	Remain Open	Alternate for W25.
SB5	Remain Open	Alternate for W25.
SB6	Will Be Closed	Upgradient of site.
SB7	Remain Open	Alternate for UN5.

Well Number	Status	Reason
SB8	Remain Open	Alternate for UN1.
SB9	Remain Open	Alternate for UN2.
SB10	Will Be Closed	None or limited recovery.
SB11	Remain Open	Alternate for UN1, UN5.
SB12	Will Be Closed	Damaged by farm equipment/none or limited recovery.
SB13	Will Be Closed	None or limited recovery.
UN1	Remain Open	Included in groundwater sampling plan.
UN2	Remain Open	Included in groundwater sampling plan.
UN3	Remain Open	Included in groundwater sampling plan.
UN4	Remain Open	Included in groundwater sampling plan.
UN5	Remain Open	Included in groundwater sampling plan.
W10	Remain Open	Included in groundwater sampling plan.
W11	Remain Open	Alternate for W10.
W12	Remain Open	Alternate for W10.
W13	Will Be Closed	None or limited recovery.
W14	Will Be Closed	None or limited recovery.
W15	Remain Open	Alternate for W25.
W16	Remain Open	Alternate for W23.
W17	Will Be Closed	Damaged by farm equipment.
W18	Will Be Closed	None or limited recovery.
W19	Will Be Closed	Damaged by farm equipment.
W20	Will Be Closed	None or limited recovery.
W21	Will Be Closed	None or limited recovery.
W22	Will Be Closed	None or limited recovery.
W23	Remain Open	Alternate for W25.
W24	Remain Open	Alternate for W25.
W25	Remain Open	Included in groundwater sampling plan.

Well Number	Status	Reason
W26	Will Be Closed	Upgradient of site.
W27	Will Be Closed	Upgradient of site/damaged by farm equipment.
W28	Will Be Closed	Upgradient of site/damaged by farm equipment.
W29	Will Be Closed	Upgradient of site.

GERAGHTY & MILLER, INC.

Table 4. Construction Details of Monitor Wells Installed by Geologic Associates, Inc.

WELL NO.	INSTALLATION DATE	SURFACE ELEV. (ft msl)	MEAS. PT. ELEV. (ft msl)	SCREENED INTERVAL (Depth, ft)	FILTER PACK INTERVAL (Depth, ft)	BENTONITE SEAL INTERVAL (Depth, ft)	GROUT BACKFILL INTERVAL (Depth, ft)	AUGER OR WASH BIT REFUSAL (Depth, ft)
PZ-1	1/15/86	777.1	780.3	20.55 - 30.55	12.0 - 31.3	9.6 - 12.0	0 - 9.6	9.6
PZ-2	1/15/86	778.08	781.2	20.7 - 30.7	6.0 - 30.7	4.5 - 6.0	0 - 4.5	5.4
PZ-3	1/17/86	787.25	790.0	20.7 - 30.5	6.5 - 30.7	5.0 - 6.5	0 - 5.0	5.7
PZ-4	1/17/86	790.40	793.6	20.0 - 30.0	7.0 - 31.2	5.0 - 7.0	0 - 5.0	5.7
PZ-5	1/20/86	797.70	800.6	21.0 - 32.0	6.0 - 32.0	4.0 - 6.0	0 - 4.0	5.0
PZ-6	1/21/86	808.47	810.5	18.5 - 28.5	10.5 - 28.5	8.5 - 10.5	0 - 8.5	9.3
PZ-7	1/23/86	779.08	782.0	5.0 - 8.5	5.0 - 8.3	3.5 - 5.0	0 - 3.5	6.2
PZ-7A	1/24/86	778.77	781.5	11.4 - 21.4	7.5 - 21.4	6.0 - 7.5	0 - 6.0	6.3
PZ-8	1/27/86	777.60	780.7	8.0 - 11.1	8.0 - 11.0	6.0 - 8.0	0 - 6.0	9.9
PZ-9	1/28/86	777.0	779.4	7.5 - 10.4	7.0 - 10.4	5.5 - 7.0	0 - 5.5	7.4
W-10	3/04/86	769.8	772.1	5.4 - 13.2	3.7 - 13.2	1.7 - 3.7	0 - 1.75	7.8
W-11	3/04/86	768.83	771.2	1.8 - 7.2	1.8 - 7.2	0 - 1.8		4.9
W-12	3/04/86	771.19	773.5	4.1 - 9.5	3.1 - 9.5	1.0 - 3.1	0 - 1.0	7.2
W-13	3/04/86	764.07	776.5	1.4 - 7.0	1.3 - 7.0	0 - 1.3		4.6
W-14	3/04/86	767.29	769.7	2.6 - 5.5	2.6 - 5.5	0 - 2.6		3.5
W-15	3/14/86	765.16	767.6	3.6 - 6.5	2.6 - 6.5	0 - 2.6		4.5
W-16	3/04/86	767.5	769.9	6.1 - 11.5	5.1 - 11.5	2.6 - 5.1	0 - 2.6	1.2
W-17	3/14/96	758.3	760.6	2.0 - 7.5	2.1 - 8.0	0 - 2.1		5.7
W-18	3/14/86	759.0	761.4	4.7 - 9.2	3.4 - 9.2	1.2 - 3.4	0 - 1.2	7.0
W-19	3/14/86	759.9	761.3	5.6 - 11.0	4.6 - 11.0	2.6 - 4.6	0 - 2.6	8.9
W-20	3/14/86	751.2	753.6	3.7 - 6.5	2.7 - 6.5	0 - 2.7		4.4
W-21	2/28/86	750.31	752.7	6.0 - 11.5	5.2 - 11.5	3.2 - 5.2	0 - 3.2	8.5
W-22	2/28/86	750.0	752.4	2.2 - 7.8	2.0 - 7.0	0 - 2.0		5.4
W-23	2/28/86	744.63	747.0	6.5 - 14.5	4.5 - 14.5	2.5 - 4.5	0 - 2.5	11.2
W-24	3/03/86	745.0	748.0	8.5 - 13.8	7.0 - 13.8	4.5 - 7.0	0 - 4.5	11.3
W-25	3/14/86	765.10	767.5	1.5 - 6.9	3.0 - 6.9	0 - 3.0		6.9
W-26	3/03/86	792.10	794.5	8.0 - 21.2	6.5 - 21.2	3.0 - 6.5	0 - 3.0	10.9
W-27	3/03/86	794.79	797.3	1.0 - 11.6	1.6 - 11.6	0 - 1.6		7.0
W-28	3/03/86	764.99	767.4	3.0 - 11.0	2.5 - 11.0	0 - 2.5		5.8
W-29	3/04/86	822.0	824.4	16.7 - 44.5	10.2 - 44.5	8.2 - 10.2	0 - 8.2	8.3

NOTES

1. Measuring points are top of PVC casing.
2. Total depth of each well is the bottom of the filter pack.
3. All casing is 2-inch-diameter PVC, flush threaded.
4. All screen is 2-inch-diameter PVC, slotted (0.01 in slot).
5. Wells PZ-1 through PZ-9 wash-bored to bedrock (6-inch-diameter borehole).
6. Wells W-10 through W-29 augered to bedrock (6-inch-diameter borehole).
7. All wells except W-25 cored from top of bedrock to total depth (3-inch-diameter corehole).

Table 7. G&M Monitor-Well Construction Details

Well Number	Surface Elevation (ft msl)	Top of Casing* Elevation (ft msl)	Surface** Casing	Top of** Bentonite Seal	Top of** Filter Pack	Top of** Screen	Total Depth of Boring
DB1	793.3	796.87	35.0	102.2	107.1	108.9	119.4
DB2	787.2	790.22	21.5	91.0	95.5	97.7	108.2
DB3	771.0	773.76	27.0	68.2	72.0	74.5	94.9
DB4	744.8	747.84	20.0	76.8	80.3	82.4	92.9
DB5	760.7	764.09	25.0	93.2	97.4	99.6	110.1
DB6	790.5	793.68	35.0	126.8	129.8	132.9	143.7
DB7	779.2	782.41	22.0	94.3	100.7	103.9	114.3
DB8	777.9	781.06	30.0	86.0	95.7	98.7	109.1
SB1	820.2	823.62	18.0	18.4	25.6	26.7	37.1
SB2	788.2	791.11	7.5	8.5	12.5	14.5	20.0
SB3	771.6	774.34	12.0	19.4	23.2	24.7	30.2
SB4	768.1	771.09	8.5	7.8	10.4	12.8	18.4
SB5	760.5	763.40	8.5	7.6	12.1	13.6	19.2
SB6	790.6	793.96	10.0	23.1	26.6	28.7	34.3
SB7	780.0	783.36	13.5	11.7	14.5	16.6	22.0
SB8	777.9	781.12	12.0	11.3	14.3	16.8	22.2
SB9	770.7	773.79	6.5	8.8	13.3	15.4	20.8
SB10	781.9	784.85	7.5	12.0	16.5	18.6	24.0
SB11	780.4	783.82	9.0	12.8	16.1	18.4	23.8
SB12	783.6	786.68	9.0	12.3	16.8	18.9	24.3
SB13	784.3	787.36	8.0	12.8	16.5	18.9	24.3
UN1	777.4	780.45	N/A	3.4	7.1	7.2	9.4
UN2	770.6	773.70	N/A	0.1	2.1	2.2	4.5

* Top of 2-in-diameter casing (water level measuring point)
** Measured depth in feet below land surface

ADDITIONAL MONITORING WELLS IN 1988

Well Number	Installation Date	Surface Elevation (ft msl)	Measurement Point Elevation (ft msl)	Screened Interval (depth, ft)	Filter Pack Interval (depth, ft)	Bentonite Seal Interval (depth, ft)	Total Depth of Boring (ft)
UN-3	05/11/88	770.50	773.00	3.1 - 5.2	2.5 - 5.2	0.0 - 2.5	5.2
UN-4	05/10/88	772.05	774.33	4.6 - 6.7	3.0 - 6.7	0.0 - 3.0	6.7
UN-5	05/10/88	780.01	782.22	8.2 - 10.3	3.0 - 10.3	0.0 - 3.0	10.3

NOTE: Depth, ft measurements are from land surface.

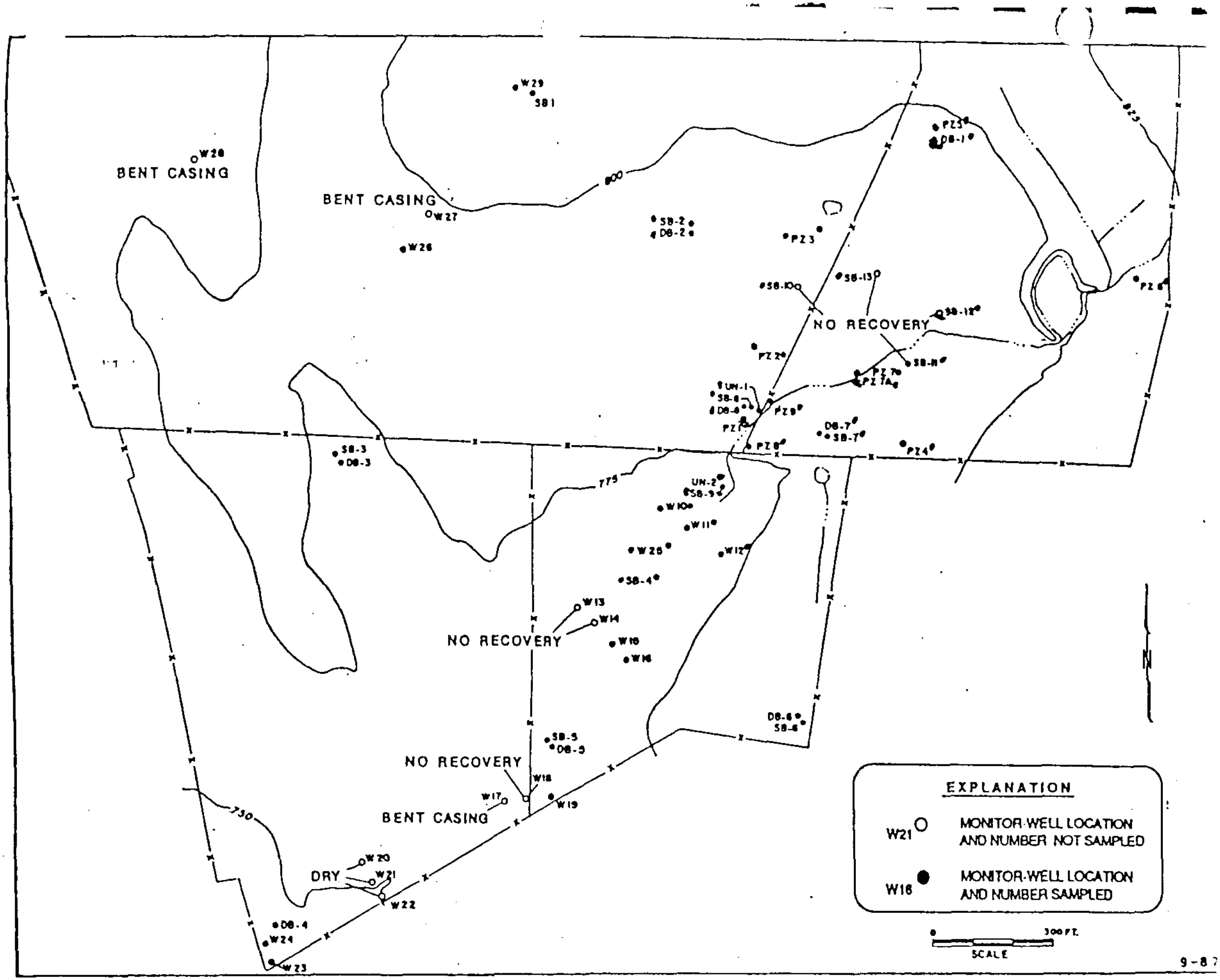


FIGURE 27. GROUND-WATER QUALITY SAMPLING POINTS (JULY 1987)

GROUNDWATER MONITORING RESULTS
TDEC WELL MONITORING PROGRAM

TDEC WELL MONIT...

QUARTERLY/BI-ANNUAL MONIT NG PROGRAM - KENNON SITE

VOLATILE ORGANICS

USEPA METHOD 8240 OR EPA HSL VOLATILES	PRE-CONSTRUCTION BGD SAMPLE - 2/20/89 & 3/29/89											
	UN-1	UN-2	UN-3	UN-4	UN-5	W-10	W-11	W-12	W-25	FB	RB	TB
Acetone												
Benzene	.02	.002										
Bromodichloromethane												
Bromoform												
Bromomethane												
2-Butanone												
Carbon Disulfide												
Carbon Tetrachloride												
Chlorobenzene												
Chloroethane		.129			.09							
Chloroform												
Chloromethane												
Dibromochloromethane												
1,2-Dichlorobenzene												
1,3-Dichlorobenzene												
1,4-Dichlorobenzene												
1,1-Dichloroethane	.32	.114	.01		.14							
1,2-Dichloroethane	.06											
1,1-Dichloroethene												
Trans-1,2-Dichloroethene	.47	.109			.23							
1,2-Dichloropropane												
CIS-1,3-Dichloropropene												
Trans-1,3-Dichloropropene												
Ethyl Benzene	.04											
2-Hexanone												
Methylene Chloride												
4-Methyl-2-Pentanone												
Styrene												
1,1,2,2-Tetrachloroethane												
Tetrachloroethene												
Toluene	6.9	.003										
1,1,1-Trichloroethane	.07	.051										
1,1,2-Trichloroethane												
Trichloroethene		.007										
Vinyl Acetate												
Vinyl Chloride		.011										
Total Xylenes	.27											
Total-1,2-Dichloroethylene												
1,1-Dichloroethylene												
NO VOLATILES DETECTED				•		•	•	•	•	•	•	•

TDEC WELL MONITORING - ANALYSIS OF RESULTS (All results in milligrams/liter)
QUARTERLY/BI-ANNUAL MONITORING PROGRAM - KENNON SITE

VOLATILE ORGANICS

USEPA METHOD 8240	1ST QRT./ 1991 - 4/9/91				2ND QTR./ 1991 - 6/21/91					
OR EPA HSL VOLATILES	UN-3	W-10	MB	TB	RB	TB	UN-1	UN-3	W-10	W-25
Acetone										
Benzene							.0014J			
Bromodichloromethane										
Bromoform										
Bromomethane										
2-Butanone										
Carbon Disulfide										
Carbon Tetrachloride										
Chlorobenzene										
Chloroethane										
Chloroform						0.0009J				
Chloromethane										
Dibromochloromethane										
1,2-Dichlorobenzene										
1,3-Dichlorobenzene										
1,4-Dichlorobenzene										
1,1-Dichloroethane							.034	.0026J		
1,2-Dichloroethane							.0061J	.0029J		
1,1-Dichloroethene										
Trans-1,2-Dichloroethene							0.22			
1,2-Dichloropropene										
CIS-1,3-Dichloropropene										
Trans-1,3-Dichloropropene										
Ethyl Benzene							.0018J			
2-Hexanone										
Methylene Chloride					0.0003J	.0006JB				
4-Methyl-2-Pentanone										
Styrene										
1,1,2,2-Tetrachloroethane										
Tetrachloroethene										
Toluene		.0021			0.0014J					
1,1,1-Trichloroethane						.0057J				
1,1,2-Trichloroethane										
Trichloroethene						.0025J				
Vinyl Acetate										
Vinyl Chloride						.054				
Total Xylenes										
Total-1,2-Dichloroethylene										
1,1-Dichloroethylene										
NO VOLATILES DETECTED	*		*	*					*	*

TDEC WELL MONITORING - ANALYSIS OF RESULTS (All results in milligrams/liter)
QUARTERLY/BI-ANNUAL MONITORING PROGRAM - KENNON SITE

VOLATILE ORGANICS

USEPA METHOD 8240	3RD QTR./ 1991 - 10/25/91			4TH QTR. / 1991 - 12/18/91							
OR EPA HSL VOLATILES	W-10	MB	TB	UN-1	UN-3	SB-7	W-10	W-25	TB	MB	MB
Acetone	0.012J		0.0064J	0.16							
Benzene	0.0009J			0.0015J							
Bromodichloromethane											
Bromoform											
Bromomethane											
2-Butanone											
Carbon Disulfide				0.012J							
Carbon Tetrachloride											
Chlorobenzene	0.0009J										0.0014J
Chloroethane											
Chloroform											
Chloromethane											
Dibromochloromethane											
1,2-Dichlorobenzene											0.0032J
1,3-Dichlorobenzene											0.0035J
1,4-Dichlorobenzene											0.0034J
1,1-Dichloroethane				0.014		0.76D					
1,2-Dichloroethane											
1,1-Dichloroethene											
Trans-1,2-Dichloroethene				0.019		0.240D					
1,2-Dichloropropane											
CIS-1,3-Dichloropropene											
Trans-1,3-Dichloropropene											
Ethyl Benzene											
2-Hexanone											
Methylene Chloride											
4-Methyl-2-Pentanone											
Styrene											
1,1,2,2-Tetrachloroethane											
Tetrachloroethene											
Toluene											
1,1,1-Trichloroethane											
1,1,2-Trichloroethane											
Trichloroethene											
Vinyl Acetate											
Vinyl Chloride											
Total Xylenes											
Total-1,2-Dichloroethylene											
1,1-Dichloroethylene											
NO VOLATILES DETECTED		•			•		•	•	•	•	

TDEC WELL MONITORING - ANALYSIS OF RESULTS (All results in milligrams/liter)
QUARTERLY/BI-ANNUAL MONITORING PROGRAM - KENNON SITE

VOLATILE ORGANICS

USEPA METHOD 8240	1ST QTR./ 1992 - 3/16/92					2ND QTR./ 1992 - 6/16/92					
OR EPA HSL VOLATILES	W-10	UN-3	TB	MB	MB	UN-1	UN-3	W-10	W-25	TB	MB
Acetone	01JB	.005JB	.0084JB	.0036JB	.0045J						
Benzene											
Bromodichloromethane											
Bromoform											
Bromomethane											
2-Butanone											
Carbon Disulfide											
Carbon Tetrachloride											
Chlorobenzene								.0007J			
Chloroethane											
Chloroform											
Chloromethane											
Dibromochloromethane											
1,2-Dichlorobenzene											
1,3-Dichlorobenzene											
1,4-Dichlorobenzene											
1,1-Dichloroethane							.0047J				
1,2-Dichloroethane											
1,1-Dichloroethene							.0027J				
Trans-1,2-Dichloroethene											
1,2-Dichloropropane											
CIS-1,3-Dichloropropene											
Trans-1,3-Dichloropropene											
Ethyl Benzene								.0015J			
2-Hexanone											
Methylene Chloride											
4-Methyl-2-Pentanone											
Styrene											
1,1,2,2-Tetrachloroethane											
Tetrachloroethene											
Toluene								.0069J			
1,1,1-Trichloroethane						.0033J					
1,1,2-Trichloroethane											
Trichloroethene						.0022J					
Vinyl Acetate											
Vinyl Chloride											
Total Xylenes								.0013J			
Total-1,2-Dichloroethylene											
1,1-Dichloroethylene											
NO VOLATILES DETECTED									•	•	•

TDEC WELL MONITORING - ANALYSIS OF RESULTS (All results in milligrams/liter)
QUARTERLY/BI-ANNUAL MONITORING PROGRAM - KENNON SITE

VOLATILE ORGANICS

USEPA METHOD 8240	3RD QTR / 1992 (9-16-92)			4TH QTR/1992 (12-29-92)		1ST QTR/1993 (4-6-93)		2ND QTR / 1993 (5-6-93)		
OR EPA HSL VOLATILES	X_1	X_2	MB	X	MB	X	MB	W-10	UN-3	UN-1
Acetone										
Benzene										
Bromodichloromethane										
Bromoform										
Bromomethane										
2-Butanone										
Carbon Disulfide										
Carbon Tetrachloride										
Chlorobenzene										
Chloroethane										
Chloroform										
Chloromethane										
Dibromochloromethane										
1,2-Dichlorobenzene										
1,3-Dichlorobenzene										
1,4-Dichlorobenzene										
1,1-Dichloroethane	.0610	.0600								
1,2-Dichloroethane		.0048J								
1,1-Dichloroethene	.0240	.0250								
Trans-1,2-Dichloroethene										
1,2-Dichloropropane										
CIS-1,3-Dichloropropene										
Trans-1,3-Dichloropropene										
Ethyl Benzene										
2-Hexanone										
Methylene Chloride										
4-Methyl-2-Pentanone										
Styrene										
1,1,2,2-Tetrachloroethane										
Tetrachloroethene										
Toluene										0.0012J
1,1,1-Trichloroethane										
1,1,2-Trichloroethane										
Trichloroethene										0.0009J
Vinyl Acetate										
Vinyl Chloride										
Total Xylenes										
Total-1,2-Dichloroethylene										
1,1-Dichloroethylene										
NO VOLATILES DETECTED										

TDEC WELL MONITORING - ANALYSIS OF RESULTS (All results in milligrams/liter)
QUARTERLY/BI-ANNUAL MONITORING PROGRAM - KENNON SITE

VOLATILE ORGANICS

USEPA METHOD 8240	2ND QTR/1993 (cont)		3RD QTR/1993 (8-4-93)		4TH QTR / 1993 (10-26-93)					
OR EPA HSL VOLATILES	X	MB	X	MB	W10	W25	DB8	SB7	X	MB
Acetone					0.0066J	0.017J	0.0066J	0.0072J	0.013J	
Benzene										
Bromodichloromethane										
Bromoform										
Bromomethane										
2-Butanone										
Carbon Disulfide							0.0014J			
Carbon Tetrachloride										
Chlorobenzene										
Chloroethane										
Chloroform										
Chloromethane										
Dibromochloromethane										
1,2-Dichlorobenzene										
1,3-Dichlorobenzene										
1,4-Dichlorobenzene										
1,1-Dichloroethane								0.2		
1,2-Dichloroethane								0.051		
1,1-Dichloroethene										
Trans-1,2-Dichloroethene								0.046		
1,2-Dichloropropane										
CIS-1,3-Dichloropropene										
Trans-1,3-Dichloropropene										
Ethyl Benzene										
2-Hexanone										
Methylene Chloride									0.0014J	
4-Methyl-2-Pentanone										
Styrene										
1,1,2,2-Tetrachloroethane										
Tetrachloroethene										
Toluene						0.04				
1,1,1-Trichloroethane										
1,1,2-Trichloroethane										
Trichloroethene										
Vinyl Acetate										
Vinyl Chloride										
Total Xylenes										
Total-1,2-Dichloroethylene										
1,1-Dichloroethylene										
NO VOLATILES DETECTED										

GROUNDWATER MONITORING RESULTS
CITY OF BRENTWOOD MONITORING PROGRAM

WASTE WATER SAMPLING PROGRAM - CITY OF BRENTWOOD
KENNON SITE - MANHOLE "X"
All Results in Milligrams per Liter

PARAMETER	BASELINE 11-30-90	1ST QTR. 3-15-90	2ND QTR. 6-5-90	3RD QTR. 8-29-90	4TH QTR. 11-30-90	1ST QTR. 4-9-91	2ND QTR. 6-21-91	3RD QTR. 10-25-91	4TH QTR. 12-18-91	1ST QTR. 3-16-92	2ND QTR. 6-16-92	3RD QTR. 9-16-92 "X1"	3RD QTR. 9-16-92 "X2"
Ammonia Nitrogen Dist.	0.14								.00019				
BOD	<5								<.003				
Hexavalent Chromium	<0.01												
COD	18												
T. Cyanide	<0.01												
Oil & Grease	<2												
TSS	4								.004				
Cadmium	<0.005												
Chromium	<0.02												
Copper	<0.01								.005				
Lead	<0.1								.028				
Nickel	<0.02								.024				
Silver	<0.01												
Zinc	0.04								.036				
Arsenic	0.004												
Selenium	<0.02												
Mercury	<0.0002												
Priority Poll. VOC													
Dichlorobromomethane				0.0022									
Chloroethane	0.013	0.0177	0.005		0.017			.0038J					
1,1-Dichloroethane	0.050	0.0531	0.0369	0.0818	0.061	0.016	0.047	0.079	0.029		0.025	0.061	0.06
1,2-Dichloroethane		0.0106	0.007	0.0095			.0058J	.067J					0048J
Tetrachloroethylene													
1,1,1-Trichloroethane	0.023	0.0216	0.0045	0.0043	0.012	0.011	.0079J		.0052J	.0036J	.0032J		
Benzene				0.0035									
Methylene Chloride		0.0128											
Toluene					0.0073			0.0013			0.01		
1,2-Dichloroethylene	0.056	0.0606	0.0259	0.0113	0.09	0.14							
Trichloroethylene													
Vinyl Chloride					0.018								
1,1-Dichloroethylene													
Ethylbenzene													
Dichlorodiflouromethane													
1,2-Dichloroethene							0.036	0.034		.0065J	0.016	0.024	0.025
1,1-Dichloroethene													
Trichloroethene									.0029J				
Acetone													

WASTE WATER SAMPLING PROGRAM - CITY OF BRENTWOOD

KENNON SITE - MANHOLE "X"

All Results in Milligrams per Liter

PARAMETER	4TH QTR. 12-29-92	1ST QTR. 4-6-93	2ND QTR. 5-6-93	3RD QTR. 8-4-93	4TH QTR. 10-26-93	1ST QTR.	2ND QTR.	3RD QTR.	4TH QTR.	1ST QTR.	2ND QTR.	3RD QTR.	4TH QTR.
Ammonia Nitrogen Dist.													
BOD													
Hexavalent Chromium													
COD													
T. Cyanide													
Oil & Grease					0.0099								
TSS					0.03								
Cadmium													
Chromium													
Copper													
Lead													
Nickel													
Silver													
Zinc					0.034								
Arsenic													
Selenium													
Mercury													
Priority Poll. VOC													
Dichlorobromomethane													
Chloroethane													
1,1-Dichloroethane													
1,2-Dichloroethane													
Tetrachloroethylene													
1,1,1-Trichloroethane													
Benzene													
Methylene Chloride					0.0014J								
Toluene													
1,2-Dichloroethylene													
Trichloroethylene													
Vinyl Chloride													
1,1-Dichloroethylene													
Ethylbenzene													
Dichlorodiflouromethane													
1,2-Dichloroethene													
1,1-Dichloroethene													
Trichloroethene													
Acetone					0.0013J								

GROUNDWATER MONITORING RESULTS
EVACUATION MONITORING PROGRAM

WASTE WATER SAMPLING PROGRAM - CITY OF BRENTWOOD
KENNON SITE - EXCAVATION SAMPLES
All Results in Milligrams per Liter

PARAMETER	BASELINE 11-30-90	EXCAV. 10-24-90	EXCAV. 11-20-90	EXCAV. 12-7-90	EXCAV. 12-14-90	EXCAV. 12-19-90	EXCAV. 1-18-91	EXCAV. 1-25-91*	EXCAV. 1-31-91	EXCAV. 4-9-91
Ammonia Nitrogen Dist.	0.14	0.93	3.4							
BOD	<5	40.0	7.0				9.0			
Hexavalent Chromium	<0.01									
COD	18		43.0				43			
T. Cyanide	<0.01									
Oil & Grease	<2		1.4							
TSS	4	9.3	12.0				18.0			
Cadmium	<0.005	0.011								
Chromium	<0.02									
Copper	<0.01									
Lead	<0.1									
Nickel	<0.02									
Silver	<0.01									
Zinc	0.04	0.053	0.076				0.024			
Arsenic	0.004									
Selenium	<0.02									
Mercury	<0.0002		0.48							
Priority Poll. VOC										
Dichlorobromomethane										
Chloroethane	0.013	0.0034	0.049			0.017			0.011	
1.1-Dichloroethane	0.050	0.042	0.12	0.0053	0.0097	0.061	0.0048	0.28	0.072	.016
1.2-Dichloroethane		0.014	0.11		0.013		0.0047	0.19	0.009	
Tetrachloroethylene		0.0033	0.022	0.011	0.0075		0.011		0.0036	
1.1,1-Trichloroethane	0.023	0.0084	0.12	0.039	0.027	0.012	0.03	0.68	0.019	.011
Benzene			0.0031					0.019		
Methylene Chloride			0.069		0.004		0.0021			
Toluene			0.16	0.017		0.0073		11	0.013	
1.2-Dichloroethylene	0.056		0.19		0.0039	0.09	0.0042		0.039	.014
Trichloroethylene			0.0077					0.17		
Vinyl Chloride			0.024			0.018		0.0091	0.0048	
1.1-Dichloroethylene			0.0038					0.025		
Ethylbenzene								0.026		
Dichlorodiflouromethane										
1,2-Dichloroethene										
1.1-Dichloroethene										
Trichloroethene										

* - construction mishap caused small spill directly into sampling intake

WASTE WATER SAMPLING PROGRAM - CITY OF BRENTWOOD
KENNON SITE - EXCAVATION SAMPLES
All Results in Milligrams per Liter

PARAMETER	EXCAV. 4-19-91	EXCAV. 4-29-91	EXCAV. 5-3-91	EXCAV. 5-9-91	EXCAV. 5-16-91	EXCAV. 8-23-91	EXCAV. 8-21-91	EXCAV. 10-25-91
Ammonia Nitrogen Dist.								
BOD								
Hexavalent Chromium								
COD	49.5							
T. Cyanide								
Oil & Grease								
TSS	58.7							
Cadmium								
Chromium								
Copper								
Lead								
Nickel	0.03							
Silver								
Zinc	0.022							
Arsenic								
Selenium								
Mercury								
Priority Poll. VOC								
Dichlorobromomethane								
Chloroethane								.0038J
1.1-Dichloroethane	.003	.0049	.0043	.0076	.019	.006		
1.2-Dichloroethane							.0025J	.0067J
Tetrachloroethylene								
1.1,1-Trichloroethane	.0038	.0037	.0046	.0036	.010	.0054		
Benzene								
Methylene Chloride								
Toluene						.003		.0013J
1.2-Dichloroethylene	.0022	.0032	.0048	.0066	.017	.0054		
Trichloroethylene								
Vinyl Chloride								
1.1-Dichloroethylene								
Ethylbenzene								
Dichlorodifluoromethane								
1,2-Dichloroethene							.0036J	
1,1-Dichloroethene							.0062J	
Trichloroethene								

SITE SECURITY PROGRAM

SITE SECURITY PROGRAM
Kennon Site - Brentwood, Tennessee

Site security is described in two sections of the following report; Site Security - Source Control/Remediation (during the source control and remediation activities), and; Site Security - Soils Management/Bioremediation Activities (during the long-term soils management and bioremediation process).

Site Security - Source Control/Remediation Activities

The following security devices where utilized in conjunction with site security during the source control/remediation activities:

- An eight (8) foot high chain link fence was installed completely around the site as one of the first security activities. It has remained intact since that time, except for renovation and improvement to facilitate installation of gates, repair, etc.
- High density security lights, mounted on five telephone poles throughout the site, were installed to provide additional lighting for security purposes at night and at times when lighting was less than desired.
- The site access road was moved from exiting from the south end of the Kennon Farm to exit in the middle of the Kennon Farm at the existing railroad crossing. This move was accomplished to comply with a request from the City of Brentwood, but did allow additional site security since the road passed directly in front of the farm manager's home. Additional gate and locks were installed across the roadway directly in front of the farm managers home.
- A uniformed guard service was employed during all of the source control/remediation activities, with the security guard being stationed at the front gate of the site in front of the farm managers home. Traffic was limited to those contractors and deliveries necessary to site operations. Access was gained through radio communications with the site operations trailer. At nights and on weekends during the source control/remediation stage, (when activity was conducted on the site), a security guard was stationed in the site operation trailer to provide additional security.
- The electrical systems to the site, the floats that control the pumping mechanism in the lift station, and two underground storage tanks are monitored electronically by an alarm system with an automatic telephone dialer. In this twenty-four hour monitoring system, should the electricity fail or the censors indicate that the waste water control pumping system is not working accurately, then the automatic telephone dialer calls the offices of Mosely & Associates, Inc. every four minutes until corrective action is taken on the site.

Site Security - Soils Management/Bioremediation Activities:

The following activities will take place throughout the soils management/bioremediation phase of the site remediation program:

- The eight (8) foot high chain link fence with lock-secured gates will remain intact around the site until the site is de-listed by the Tennessee Department of Environment and Conservation.
- The high density security lights, mounted on the five telephone poles throughout the site, will remain active during dark hours until such time as the Tennessee Department of Environment and Conservation agrees that they may be disconnected.

- The site access road will remain in the location utilized during the source control activities, through the middle of the farm. It will continue to exit directly in front of the farm managers home, to provide additional security for the site. Dual locks will remain on the farm gate in front of the farm managers home, to allow entrance to the site access road to the farm manager, Mosely & Associates, Inc. personnel, or the Tennessee Department of Environment and Conservation
- The site electrical/pumping system alarm mechanism will continue to operate until the site is de-listed by the Tennessee Department of Environment and Conservation. Should the electricity be interrupted at the site, or should the sensors located in the lift station, electrical panels or underground storage tanks detect that the water flow control program is not working satisfactorily, the office of Mosely & Associates, Inc, in Nashville, Tennessee will be called by the automatic telephone calling system every four minutes until personnel arrive at the site to correct the situation. It should be emphasized that there is at least four to six weeks of groundwater holding capacity on the site itself, even in times of heavy rain, in the event that the system fails to function properly. Temporary situations such as electrical outages during storms, etc. are usually self-corrected within a matter of minutes.

<u>Emergency Personnel Listing</u>:

The following personnel have been designated and properly trained for emergency purposes to accomplish any emergency actions that may occur on the site itself:

INITIAL CONTACT FOR ALL EMERGENCIES AND OVERALL RESPONSIBILITY:	DAY TIME TELEPHONE	EMERGENCY TELEPHONE
Ralph Mosely, President Mosely & Associates, Inc.	615-399-1016	615-664-1813
David Johnson, Sr. Consultant Mosely & Associates, Inc.	615-399-1016	615-664-1813
ELECTRICAL AND MECHANICAL PROBLEMS AND PUMPING SYSTEM:		
Roy Gregory/John Ray Genesco Inc.	615-367-8222	615-367-7701
TENNESSEE OF DEPARTMENT ENVIRONMENT AND CONSERVATION - NASHVILLE FIELD OFFICE:		
Brenda Apple	615-741-5940	1-800-251-3479

Reference 5

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION

OFFICE CORRESPONDENCE

FROM	TO	DATE

DATE: 12-18-92

TO: DSF, NPO Staff

FROM: Brenda Apple BKA

SUBJECT: Public Drinking Water Systems in Middle Tennessee

Please find attached two lists. One is of community systems and one is of non-community systems. Both lists should be reviewed for PA/SI purposes. The main difference between the two systems is the number of people they serve. The reference for this source of information is "Tennessee Division of Water Supply, Public Water System Directory, December 15, 1992".

You will still need to contact the Ground Water section in the Division of Water Supply for private well information. Following is an explanation of some of the codes:

1. 01, 02...indicates the systems source of water (even if they buy water from someone else.)

2. The latitude, longitude and river mile is listed when appropriate and available.

3. The column with service connections can be treated as number of residences in service area and then is multiplied by county household factors to get population column.

4. Source Codes are: S=surface water
G=ground water (well or spring)
P=purchased surface water
W=purchased ground water

FROM	DATE

TO

bkal.doc

BKA/kdr

CN-0920

00427 MANCHESTER WATER DEPARTMENT (615) 728-7171 P 9900 3574
200 W. Fort Street
Manchester, TN 37355

RIVER MILE

01 DUCK RIVER UC (PWSID # 0000821)

00879 SHADY GROVE MHP (615) 728-3169 G 110 40
Route 8, Dixie Highway West
Manchester, TN 37355

	LATITUDE	LONGTITUDE	RIVER MILE
01 WELL	0352658	0860208	

000880 STACEY ANN'S MHP [redacted] G 108 42
[redacted]

	LATITUDE	LONGTITUDE	RIVER MILE
01 WELL 1	0352604	0860551	
02 WELL 1	0352606	0860556	

000715 TULLAHOMA BOARD OF UTILITIES (615) 455-4515 P 21367 7170
P.O. BOX 788
Tullahoma, TN 37388

RIVER MILE

01 DUCK RIVER U C (PWSID # 0000821)

AVIDSON COUNTY

PWSID	NAME	TELEPHONE	SRCE CODE	POPUL.	SERVICE CONN.

000297 CUMBERLAND UTILITY DISTRICT (615) 883-8505 S 23220 9000
6020 PANAMA DR
HERMITAGE, TN 37076

	LATITUDE	LONGTITUDE	RIVER MILE
01 CUMBERLAND R.	0361228	0863830	207.6

000286 HARPETH VALLEY U D (615) 352-7076 S 20885 8095
P.O. BOX 319
Nashville, TN 37221

	LATITUDE	LONGTITUDE	RIVER MILE
01 CUMBERLAND RIVE	0360810	0865515	172.6

000528 LAKEWOOD WATER DEPARTMENT (615) 847-3711 P 1935 750
3401 Hadley Avenue
Old Hickory, TN 37138

RIVER MILE

01 OLD HICKORY U D (PWSID # 0000527)

000424 MADISON SUBURBAN UD (615) 868-3201 S 38700 15000
P.O. Box 175
Madison, TN 37116

	LATITUDE	LONGTITUDE	RIVER MILE
01 CUMBERLAND RIVE	0361427	0864245	200.3

000494 NASHVILLE WATER DEPT (615) 259-6425 S 690000 130526
1600 Second Avenue, North
Nashville, TN 37201

	LATITUDE	LONGTITUDE	RIVER MILE
01 CUMBERLAND PL#1	0360948	0864331	193.8
02 CUMBERLAND PL#2	0361140	0863925	206.3

000527 OLD HICKORY UTILITY DISTRICT (615) 847-2043 S 3422 1450
1050 Donelson Avenue
Old Hickory, TN 37138

[illegible]

00190 DEWHITE UTILITY DISTRICT (615) 836-8101 P 3519 1370
P.O. BOX 328
Sparta, TN 38583

RIVER MILE

01 SPARTA (PWSID # 0000652)

00526 WINNOR UTILITY DISTRICT (615) 738-5610 P 4926 1736
P.O. BOX 36
Sparta, TN 38583

RIVER MILE

01 SPARTA, CITY OF (PWSID # 0000652)

00831 PRICES SWITCH WATER COMPANY (615) 935-2618 P 186 [illegible]
P.O. Box 144
Sparta, TN 38583

RIVER MILE

01 BON DE CROFT UD (PWSID # 0000653)

000569 QUBECK WALLING U D #1 (615) 836-2147 P 2363 850
Sparta Shopping Center Annex
Sparta, TN 38583

RIVER MILE

01 SPARTA WATER (PWSID # 0000652)

000852 QUBECK WALLING U D #2 (615) 836-2147 P 487 175
Sparta Shopping Center Annex
Sparta, TN 38583

RIVER MILE

01 DEWHITE U.D. (PWSID # 0000190)

[illegible] 52 SPARTA WATER SYSTEM (615) 738-2281 S 8259 2971
P.O. BOX 468
Sparta, TN 38583

	LATITUDE	LONGITUDE	RIVER MILE
01 CALFKILLER RIVE	0355555	0852745	016.1

WILLIAMSON COUNTY

PWSID	NAME	TELEPHONE	SRCE CODE	POPUL.	SERVICE CONN.
0000069	BRENTWOOD WATER DEPT.	(615) 371-0080	P	14593	4739

P.O. BOX 788
Brentwood, TN 37024

RIVER MILE

01 HARPETH VALLEY (PWSID # 0000286)
02 METRO WATER (PWSID # 0000494)

0000236 FAIRVIEW WATER SYSTEM (615) 799-2482 S 4326 1502
P.O. Box 69 City Hall
Fairview, TN 37062

	LATITUDE	LONGITUDE	RIVER MILE
01 HORN TAVERN SPG	0355935	0870805	
02 HARPETH VALLEY (PWSID # 0000286)			
03 MIDDLE SCH WELL	0355400	0870905	

0000246 FRANKLIN WATER DEPT (615) 794 4572 S 25410 [illegible]
358 Lewisburg Pike
Franklin, TN 37064

	LATITUDE	LONGITUDE	RIVER MILE
01 HARPETH RIVER	0355433	0865115	[illegible].2
03 HARPETH VALLEY (PWSID # 0000286)			

Reference 6

4/27/93

Federally Listed Species by State

TENNESSEE

(E=Endangered; T=Threatened; CH=Critical Habitat determined)

Mammals	General Distribution
Bat, gray (Myotis grisescens) - E	Entire State
Bat, Indiana (Myotis sodalis) - E, CH	Central, East
Cougar, eastern (Felis concolor couguar) - E	North, East
Panther, Florida (Felis concolor coryi) - E	Southwest
Squirrel, Carolina northern flying (Glaucomys sabrinus coloratus) - E	Eastern mountains (Carter and Sevier Counties)

Birds	
Eagle, bald (Haliaeetus leucocephalus) - E	Entire State
Falcon, American peregrine (Falco peregrinus anatum) - E	East, Central, Extreme Northwest
Falcon, Arctic peregrine (Falco peregrinus tundrius) - T	Entire State (mostly West)
Tern, least (Sterna antillarum) interior population - E	Mississippi River
Warbler, Bachman's (Vermivora bachmanii) - E	West
Warbler, Kirtland's (Dendroica kirtlandii) - E	Extreme Northeast
Woodpecker, ivory-billed (Campephilus principalis) - E	Extreme West
Woodpecker, red-cockaded (Picoides [=Dendrocopos] borealis) - E	East

Fishes	
Chub, slender (Hybopsis cahni) - T,CH	Hancock, Claiborne, Grainger Counties
Chub, spotfin (Hybopsis monacha) - T,CH	Hawkins, Sullivan, Morgan, Fentress, and Cumberland Counties
Dace, blackside (Phoxinus cumberlandensis) - T	Upper Cumberland River System (Scott, Campbell, and Claiborne Counties)
Darter, amber (Percina antesella) - E,CH	Conasauga R., Polk County

	General Distribution
Mussel, Appalachian monkeyface pearly (Quadrula sparsa) - E	Powell River
Mussel, birdwing pearly (Conradilla caelata) - E	Powell, Clinch, Elk and Duck Rivers
Mussel, Cumberland bean pearly (Villosa trabilis) - E	Big S. Fork of Cumberland River
Mussel, Cumberland monkeyface pearly (Quadrula intermedia) - E	Elk, Powell and Duck Rivers
Mussel, Cumberland pigtoe (Pleurobema gibberum) - E	Caney Fork River System
Mussel, dromedary pearly (Dromus dromas) - E	Powell, Clinch, Cumberland and Tennessee Rivers
Mussel, fine-rayed pigtoe pearly (Fusconaia cuneolus) - E	Powell, Clinch, Elk, Sequatchie, N. Fork Holston and Little Rivers
Mussel, green-blossom pearly (Epioblasma [=Dysnomia] torulosa gubernaculum) - E	Clinch River
Mussel, little-wing pearly (Pegias fabula) - E	Cave Creek
Mussel, orange-footed pearly (Plethobasus cooperianus) - E	Tennessee and Cumberland Rivers
Mussel, pale lilliput pearly Toxolasma [= Carunculina] cylindrella) - E	Historic; no recent TN records
Mussel, pink mucket pearly (Lampsilis orbiculata) - E	Tennessee, Clinch and Cumberland Rivers
Mussel, rough pigtoe pearly (Pleurobema plenum) - E	Clinch, Cumberland and Tennessee Rivers
Mussel, shiny pigtoe pearly (Fusconaia edgariana) - E	Powell, Clinch and Elk Rivers
Mussel, tan riffle shell (Epioblasma [=Dysnomia] walkeri) - E	Historic; no recent TN records

	General Distribution
Isotria medeoloides (small whorled pogonia) - E	Hamilton County
Phyllitis scolopendrium var. Americana (American Hart's Tongue Fern) - T	Marion County
Pityopsis ruthii (Ruth's golden aster) - E	Polk County
Scutellaria montana (large-flowered skullcap) - E	Hamilton and Marion Counties
Solidago spithamaea (Blue Ridge goldenrod) - T	Carter County
Spiraea virginiana - T (Virginia spiraea)	Nolichucky River, Unicol County; Abrams Creek and Little River, Blount County; Cane Creek, Van Buren County; White Oak Creek, Scott County; Clifty Creek in Roane County; Daddy's Creek in Cumberland County; and Clear Fork in Morgan and Scott Counties
Xyris Tennesseensis (Tennessee yellow-eyed grass) - E	Lewis County

Reference 7

HALLIBURTON NUS ENVIRONMENTAL CORPORATION		***TELECON NOTE***
CONTROL NO. MK63AP	**DATE:** 6/13/94	**TIME:** 1130
DISTRIBUTION: The Kennon Site - Brentwood, Williamson County, Tennessee		
BETWEEN: James Brian	**OF:** Tennessee Wildlife Resources Agency	**PHONE:** (615) 896-3046
AND: Teresa Sawyer, Halliburton NUS Corporation		

DISCUSSION:

I spoke with Mr. Brian concerning the Little Harpeth River. He said that it is not commercially fished, but that it was definitely used for recreational fishing. He also stated that Clovercroft Lake is used for recreation and fishing.

Reference 8

i

Kennon Site
LATITUDE 35:57:22 LONGITUDE 86:46:27 1983 POPULATION

KM	0.00-.400	.400-.810	.810-1.60	1.60-3.20	3.20-4.80	4.80-6.40	SECTOR TOTALS
S 1	0	0	0	0	0	0	0
S 2	0	0	0	434	0	4147	4581
S 3	0	0	0	0	0	0	0
S 4	0	0	0	0	0	0	0
S 5	0	0	0	0	0	349	349
S 6	0	0	0	0	0	0	0
S 7	0	0	0	0	0	0	0
S 8	0	0	0	0	0	2673	2673
RING TOTALS	0	0	0	434	0	7169	7603

press RETURN to continue
MENU: Geodata Handling Data List procedures
[illegible] in parentheses) ([illegible])
or a command: HELP, HELP option, BACK, CLEAR, EXIT, TUTOR
GEMS> exit

Type YES to confirm the EXIT command; type NO to restart GEMS
GEMS> yes
$ logout
HTW logged out at 7-JUN-1994 15:25:00.93
Itemized resource charges, for this session, follow:

NODE: VAXTM1
ACCT: 9040
PROJ: GEMS0001
USER: HTW
UIC: [000710,000012]
BAUD:

START TIME: 7-JUN-1994 15:23:30.51
FINISH TIME: 7-JUN-1994 15:25:00.93
BILLING PERIOD: 940601
WEEKDAY: TUESDAY
TERMINAL PORT: VTA9018

DESCRIPTION OF CHARGE		QUANTITY	EXPENDITURE
ALL CHARGE LEVELS			
300 baud	(Seconds)	90	0.0000
CPU TIME	(Seconds)	3	0.6983
TOTAL FOR THIS SESSION			$ 0.6983

** Note: This total reflects the charges for this process only, subprocesses created during this session are accounted for separately

CLR PAD
R) z
NO CARRIER

HALLIBURTON NUS ENVIRONMENTAL CORPORATION

PROJECT NOTES

TO: FILE: THE KENNON SITE

DATE: JUNE 13, 1994

FROM: TERESA SAWYER, SITE PROJECT MANAGER

COPIES:

SUBJECT: POPULATION

I called the Chamber of Commerce, and the population of Brentwood is 19,317 persons.

KENNON SITE GENESCO

TND 981473515

SITE SUMMARY

The Kennon Site (Genesco) is located near the junction of Split Log Road and Wilson Pike east of Brentwood in Williamson County, Tennessee.

The site is on the Kennon farm in an area of old phosphate pits where in 1978 General Adhesives, a subsidiary of Genesco, dumped approximately 800 drums of organic solvents, organic fillers, and adhesives. The pits were then filled. The state was informed of this unregistered landfill by Genesco in 1985. Chemicals detected on site at appreciable levels in 1986 sampling were toluene; tetrachloroethylene; 1,1,1 trichloroethylene; 2 Butanone (Methyl ethyl ketone); xylene; hexane; 1,1,1 trichloroethene; acetone; 1,2 dichloroethane; and benzene.

Several private wells are still in use within three miles of the site and ground water contamination was discovered in early 1986. Residents with wells within a one mile radius (a population of approximately 118) were provided with bottled water at their discretion by Genesco until water lines could be run from Brentwood. Brentwood water is supplied by Metro Nashville and Harpeth Valley Utilities. The total population within three miles on groundwater prior to remedial action of running water lines was 410.

RCRA SUMMARY
KENNON SITE (GENESCO)
TND 981473515

The Kennon Site (Genesco) is a farm with phosphate pits that was used to dump approximately 800 drums of organic solvents, fillers, and adhesives in 1978. The site was never registered as a landfill and did not have a TSD permit.

TAM/ib

Facility name: Kennon Site (Genesco) TND 981473515

Location: Brentwood, Williamson County, Tennessee

EPA Region: IV

Person(s) in charge of the facility: Emmett Kennon

Ralph Mosely, Genesco

Name of Reviewer: Thomas A. Moss Date: 4/30/87

General description of the facility:

(For example: landfill, surface impoundment, pile, container; types of hazardous substances; location of the facility; contamination route of major concern; types of information needed for rating; agency action, etc.)

The Kennon Site (Genesco) is a drum disposal site used by General Adhesives, a subsidiary of Genesco, in 1978 to dispose of approximately 800 drums of organic solvents, fillers, water based adhesives by dumping them in phosphate pits and covering the pits at the site. The aquifer of concern is a carbonate, fracture-based, solutionally enlarged aquifer. A population of approx 410 persons were on private wells within 3 miles of the site prior to the remedial action of water lines being run.

Scores: $S_M =$ 25.2 ($S_{gw} =$ 43.2 $S_{sw} =$ 5.3 $S_a =$ NR)

$S_{FE} =$ Not Rated

$S_{DC} =$ Not Rated

FIGURE 1
HRS COVER SHEET

Kennon Site
IND 981473515

Ground Water Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
1 Observed Release	0 45	1	45	45	3.1
If observed release is given a score of 45, proceed to line 4. If observed release is given a score of 0, proceed to line 2.					
2 Route Characteristics					3.2
Depth to Aquifer of Concern	0 1 2 3	2		6	
Net Precipitation	0 1 2 3	1		3	
Permeability of the Unsaturated Zone	0 1 2 3	1		3	
Physical State	0 1 2 3	1		3	
Total Route Characteristics Score				15	
3 Containment	0 1 2 3	1		3	3.3
4 Waste Characteristics					3.4
Toxicity/Persistence	0 3 6 9 12 15 18	1	15	18	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1	4	8	
Total Waste Characteristics Score			19	26	
5 Targets					3.5
Ground Water Use	0 1 2 3	3	9	9	
Distance to Nearest Well/Population Served	0 4 6 8 10 12 16 18 20 24 30 32 35 40	1	20	40	
Total Targets Score			29	49	
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			24,795	57,330	
7 Divide line 6 by 57,330 and multiply by 100		S_{gw} =	43.2		

FIGURE 2
GROUND WATER ROUTE WORK SHEET

Kennon Site
IND 981473515

Surface Water Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
1 Observed Release	0 45	1	0	45	4.1
If observed release is given a value of 45, proceed to line 4. If observed release is given a value of 0, proceed to line 2.					
2 Route Characteristics					4.2
Facility Slope and Intervening Terrain	0 1 2 3	1	1	3	
1-yr. 24-hr. Rainfall	0 1 2 3	1	2	3	
Distance to Nearest Surface Water	0 1 2 3	2	4	6	
Physical State	0 1 2 3	1	3	3	
	Total Route Characteristics Score		10	15	
3 Containment	0 1 2 3	1	3	3	4.3
4 Waste Characteristics					4.4
Toxicity/Persistence	0 3 6 9 12 15 18	1	15	18	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1	4	8	
	Total Waste Characteristics Score		19	26	
5 Targets					4.5
Surface Water Use	0 1 2 3	3	6	9	
Distance to a Sensitive Environment	0 1 2 3	2	0	6	
Population Served/Distance to Water Intake Downstream	0 4 6 8 10 12 16 18 20 24 30 32 35 40	1	0	40	
	Total Targets Score		6	55	
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			3,420	64,350	
7 Divide line 6 by 64,350 and multiply by 100		S_{sw} = 5.3			

FIGURE 7
SURFACE WATER ROUTE WORK SHEET

NOT RATED

Air Route Work Sheet					Kennon Site TND 981473515
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Observed Release	0 45	1		45	5.1
Date and Location:					
Sampling Protocol:					
If line 1 is 0, the S_a = 0. Enter on line 5. If line 1 is 45, then proceed to line 2.					
2 Waste Characteristics					5.2
Reactivity and Incompatibility	0 1 2 3	1		3	
Toxicity	0 1 2 3	3		9	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
Total Waste Characteristics Score				20	
3 Targets					5.3
Population Within 4-Mile Radius	0 9 12 15 18 21 24 27 30	1		30	
Distance to Sensitive Environment	0 1 2 3	2		6	
Land Use	0 1 2 3	1		3	
Total Targets Score				39	
4 Multiply 1 x 2 x 3				35,100	
5 Divide line 4 by 35,100 and multiply by 100	S_a =				

FIGURE 9
AIR ROUTE WORK SHEET

	S	S^2
Groundwater Route Score (S_{gw})	43.2	1866.24
Surface Water Route Score (S_{sw})	5.3	28.09
Air Route Score (S_a)	Not Rated	Not Rated
$S_{gw}^2 + S_{sw}^2 + S_a^2$		1894.33
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		43.5
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} / 1.73 = S_M =$		25.2

FIGURE 10
WORKSHEET FOR COMPUTING S_M

NOT RATED

Fire and Explosion Work Sheet					Kennon Site TND 981473515
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Containment	1 3	1		3	7.1
2 Waste Characteristics					7.2
Direct Evidence	0 3	1		3	
Ignitability	0 1 2 3	1		3	
Reactivity	0 1 2 3	1		3	
Incompatibility	0 1 2 3	1		3	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
	Total Waste Characteristics Score			20	
3 Targets					7.3
Distance to Nearest Population	0 1 2 3 4 5	1		5	
Distance to Nearest Building	0 1 2 3	1		3	
Distance to Sensitive Environment	0 1 2 3	1		3	
Land Use	0 1 2 3	1		3	
Population Within 2-Mile Radius	0 1 2 3 4 5	1		5	
Buildings Within 2-Mile Radius	0 1 2 3 4 5	1		5	
	Total Targets Score			24	
4 Multiply 1 x 2 x 3				1,440	
5 Divide line 4 by 1,440 and multiply by 100	S_{FE} =				

FIGURE 11
FIRE AND EXPLOSION WORK SHEET

NOT RATED

Direct Contact Work Sheet					Kennon Site TND 981473515
Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
1 Observed Incident	0 45	1		45	8.1
If line 1 is 45, proceed to line 4 If line 1 is 0, proceed to line 2					
2 Accessibility	0 1 2 3	1		3	8.2
3 Containment	0 15	1		15	8.3
4 Waste Characteristics Toxicity	0 1 2 3	5		15	8.4
5 Targets					8.5
Population Within a 1-Mile Radius	0 1 2 3 4 5	4		20	
Distance to a *Critical Habitat*	0 1 2 3	4		12	
Total Targets Score				32	
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5				21,600	
7 Divide line 6 by 21,600 and multiply by 100		S_{DC} =			

FIGURE 12
DIRECT CONTACT WORK SHEET

DOCUMENTATION RECORDS
FOR
HAZARD RANKING SYSTEM

FACILITY NAME: Kennon Site (Genesco) TND 981473515

FACILITY DESCRIPTION: Phosphate pits on farm filled with dumped liquids and drums and covered.

LOCATION: Brentwood, Tennessee

DATE SCORED: April 28, 1987

PERSON SCORING: Thomas A. Moss

PRIMARY SOURCE(S) OF INFORMATION (e.g., EPA region, state, FIT, etc.):

State Superfund Files

FACTORS NOT SCORED DUE TO INSUFFICIENT INFORMATION:

Air, Fire and Explosion, Direct Contact

COMMENTS OR QUALIFICATIONS:

Water lines have been run to houses that were on private wells within a one-mile radius of the site.

GROUND WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected (5 maximum):

Trans-1,2-dichloroethene; toluene; 1,1,-dichloroethane; and 1,1,1-trichloroethane detected in Hackett Spring and on site monitoring wells by State Superfund sampling (Ref. 1, 2) and are known to be toxic (Ref. 3, 4). Background well (Johnson) showed no contamination (Ref. 1, 2).

Rationale for attributing the contaminants to the facility:

Contamination found in monitoring wells on site, no contamination found in background well (Ref. 1).

2 ROUTE CHARACTERISTICS

Depth to Aquifer of Concern

Name/description of aquifer(s) of concern:

The aquifer of concern would be the Ordovician limestone formations (Ref. 5, 6) of the Bigby-Cannon Limestone (70-130 ft. thick), Hermitage Formation (50-150 ft. thick), and Carters Limestone (70 ft. thick). The majority of private wells in the area have depths of 150-350 ft. (Ref. 7) and would be completed in the Hermitage Formation or Carters Limestone (Ref. 5, 6) (50-100 ft. thick). See attachment 2A for further discussion of aquifer of concern.

Depth(s) from the ground surface to the highest seasonal level of the saturated zone (water table(s)) of the aquifer of concern:

N/A

Depth from the ground surface to the lowest point of waste disposal/storage:

N/A

Net Precipitation

Mean annual or seasonal precipitation (list months for seasonal):

N/A

Mean annual lake or seasonal evaporation (list months for seasonal):

N/A

Attachment 2A
Aquifer of Concern

There are no confining layers present within the Bigby-Cannon Limestone, Hermitage Formation, and Carters Limestone. The Bigby-Cannon Limestone contains facies ranging from a microcrystalline limestone facies to medium- and coarse-grained limestone facies (Ref. 5). The Bigby-Cannon has sinkhole development and deep weathering along vertical fractures (Ref. 6). Numerous springs are present in the area (Ref. 2).

The underlying Hermitage Formation consists of a coquina (shell hash) facies with shale partings, a laminated argillaceous limestone facies, and a limestone with shale partings (Ref. 5). The Carters Limestone underlying the Hermitage consists of an upper and lower limestone member of cryptocrystalline to fine-grained limestone with shale partings separated by a thin bentonite clay (Ref. 5). The Carters weathers to a brown plastic clay with some sinkholes (Ref. 6).

Net precipitation (subtract the above figures):

N/A

Permeability of Unsaturated Zone

Soil type in unsaturated zone:

N/A

Permeability associated with soil type:

N/A

Physical State

Physical state of substances at time of disposal (or at present time for generated gases):

N/A

* * *

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

N/A

Method with highest score:

N/A

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

1,1-dichloroethene and 1,1-dichloroethane detected in pits A and B and monitoring well #8 on site and not detected in background well (Johnson) by State Superfund sampling (Ref. 1, 2, 8).

Compound with highest score:

1,1-dichloroethene has a toxicity rating of 3 (Ref. 4) and a persistence rating of 2 (Ref. 9).

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

800 drums

Basis of estimating and/or computing waste quantity:

Genesco admission of the dumping of approximately 800 55-gallon barrels of waste material containing organic solvents, organic fillers, and water based adhesives at the site by their subsidiary General Adhesives (Ref. 10).

5 TARGETS

Ground Water Use

Use(s) and aquifer(s) of concern within a 3-mile radius of the facility:

Drinking water with no municipal water presently available (Ref. 11, 12). Genesco paid for lines to be run from Brentwood for the area within a one-mile radius of the site that had no municipal water source.

Distance to Nearest Well

Location of nearest well drawing from aquifer of concern or occupied building not served by a public water supply:

Hackett Spring is used as a drinking water supply by the Hacketts (Ref. 13). Hackett house is on east side of Wilson Pike approximately 1000 ft. north of Split Log Road (Ref. 2, 14, 15).

Distance to above well or building:

Hackett Spring is contaminated (Ref. 1), distance would be considered as zero. Actual distance from the pits is approximately 1500 ft. (Ref. 14, 15).

Population Served by Ground Water Wells Within a 3-Mile Radius

Identified water-supply well(s) drawing from aquifer(s) of concern within a 3-mile radius and populations served by each:

108 houses not on public water for a population of 410 (Ref. 16).

Computation of land area irrigated by supply well(s) drawing from <u>aquifer(s) of concern</u> within a 3-mile radius, and conversion to population (1.5 people per acre):

None identified (Ref. 17)

Total population served by ground water within a 3-mile radius:

410

SURFACE WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected in surface water at the facility or downhill from it (5 maximum):

None identified

Rationale for attributing the contaminants to the facility:

N/A

* * *

2 ROUTE CHARACTERISTICS

Facility Slope and Intervening Terrain

Average slope of facility in percent:

60 ft. in 1800 ft. for 3.3% slope (Ref. 14, 15).

Name/description of nearest downslope surface water:

Unnamed creek entering the Little Harpeth River north of the junction of Wilson Pike and Split Log Road (Ref. 14, 15).

Average slope of terrain between facility and above-cited surface water body in percent:

80 ft. in 1800 ft. for 4% slope (Ref. 14, 15).

Is the facility located either totally or partially in surface water?

No (Ref. 14, 15)

Is the facility completely surrounded by areas of higher elevation?

No (Ref. 14, 15)

1-Year 24-Hour Rainfall in Inches

3 inches (Ref. 9)

Distance to Nearest Downslope Surface Water

0.4 miles from the site to where surface drainage enters unnamed tributary of Little Harpeth River (Ref. 14, 15).

Physical State of Waste

Liquids dumped at site by admission of company (Ref. 10).

* * *

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

Landfill not adequately covered and no diversion system present--drums and liquid emptied into pits and covered with no documentation indicating adequate cap (Ref. 10).

Method with highest score:

Landfill not covered, no diversion system present.

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

1,1-dichloroethene and 1,1-dichloroethane detected in pits A and B and monitoring #8 on site by State Superfund sampling (Ref. 1, 2).

Compound with highest score:

1,1-dichloroethene has a toxicity rating of 3 (Ref. 4) and a persistence rating of 2 (Ref. 9).

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

800 drums

Basis of estimating and/or computing waste quantity:

Genesco admission of the dumping of approximately 800 55-gallon barrels of waste material containing organic solvents, organic fillers, and water-based adhesives at the site by their subsidiary General Adhesives (Ref. 10).

5 TARGETS

Surface Water Use

Use(s) of surface water within 3 miles downstream of the hazardous substance:

Recreational use of the Little Harpeth River between Split Log Road and Concord Road (Ref. 17).

Is there tidal influence?

No (Ref. 14, 15)

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

None identified (Ref. 14, 15)

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

None identified (Ref. 14, 15)

Distance to critical habitat of an endangered species or national wildlife refuge, if 1 mile or less:

None identified (Ref. 18)

Population Served by Surface Water

Location(s) of water-supply intake(s) within 3 miles (free-flowing bodies) or 1 mile (static water bodies) downstream of the hazardous substance and population served by each intake:

None identified (Ref. 19)

Computation of land area irrigated by above-cited intake(s) and conversion to population (1.5 people per acre):

None identified (Ref. 17)

Total population served:

N/A

Name/description of nearest of above water bodies:

N/A

Distance to above-cited intakes, measured in stream miles:

N/A

AIR ROUTE
NOT RATED

1 OBSERVED RELEASE

Contaminants detected:

Date and Location of detection of contaminants:

Methods used to detect the contaminants:

Rationale for attributing the contaminants to the site:

* * *

2 WASTE CHARACTERISTICS

Reactivity and Incompatibility

Most reactive compound:

Most incompatible pair of compounds:

Toxicity

Most toxic compound:

Hazardous Waste Quantity

Total quantity of hazardous waste:

Basis of estimating and/or computing waste quantity:

* * *

3 TARGETS

Population Within 4-Mile Radius

Circle radius used, give population, and indicate how determined:

0 to 4 mi 0 to 1 mi 0 to 1/2 mi 0 to 1/4 mi

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

Distance to critical habitat of an endangered species, if 1 mile or less:

Land Use

Distance to commercial/industrial area, if 1 mile or less:

Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:

Distance to residential area, if 2 miles or less:

Distance to agricultural land in production within past 5 years, if 1 mile or less:

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site?

FIRE AND EXPLOSION
NOT RATED

1 CONTAINMENT

Hazardous substances present:

Type of containment, if applicable:

* * *

2 WASTE CHARACTERISTICS

<u>Direct Evidence</u>

Type of instrument and measurements:

<u>Ignitability</u>

Compound used:

<u>Reactivity</u>

Most reactive compound:

<u>Incompatibility</u>

Most incompatible pair of compounds:

* * *

<u>Hazardous Waste Quantity</u>

Total quantity of hazardous substances at the facility:

Basis of estimating and/or computing waste quantity:

* * *

3 TARGETS

Distance to Nearest Population

Distance to Nearest Building

Distance to Sensitive Environment

Distance to wetlands:

Distance to critical habitat:

Land Use

Distance to commercial/industrial area, if 1 mile or less:

Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:

Distance to residential area, if 2 miles or less:

Distance to agricultural land in production within past 5 years, if 1 mile or less:

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site?

Population Within 2-Mile Radius

Buildings Within 2-Mile Radius

DIRECT CONTACT
NOT RATED

1 OBSERVED INCIDENT

Date, location, and pertinent details of incident:

* * *

2 ACCESSIBILITY

Describe type of barrier(s):

* * *

3 CONTAINMENT

Type of containment, if applicable:

* * *

4 WASTE CHARACTERISTICS

Toxicity

Compounds evaluated:

Compound with highest score:

* * *

5 TARGETS

Population within one-mile radius

Distance to critical habitat (of endangered species)

TAM/ah
Disc--Higgs/GrndW4
SF-12

REFERENCES

KENNON SITE (GENESCO)

TND 981473515

1. Kennon Site Sampling and Event Chronology; State Superfund Sampling Results for Kennon Site (Genesco) with Sample Points for Wells/Springs. See Geraghty and Miller, 1986 for Sampling Locations.

2. Geraghty and Miller (1986): Plan for Investigation of the Kennon Site, Brentwood, Tennessee; prepared for Genesco, Inc., Dec. 1986.

3. G. Hawley, revised (1981): Condensed Chemical Dictionary, Tenth Edition; Van Nostrand Reinhold.

4. N.I. Sax (1984): Dangerous Properties of Industrial Materials, 6th Edition; Van Nostrand Reinhold.

5. (1963) Franklin Quadrangle Geologic Map - GM 63 NE.

6. Beaver Engineering (1977): Bedrock Geology of the Nashville and Middle Tennessee Area.

7. 2/19/87 Letter from Roger W. Lee, U.S. Geological Survey to Todd Hughes, TN Dept. of Health and Environment (Superfund) - Data on Observation Wells.

8. 3/19/86 and 3/24/86 Analytical Reports from Wayne McCoy, Edge to Ronnie Bowers, DSF; Re: Kennon Property Analytical Results. - Background Soil Sample (See Pond Sediment and Hackett Ditch).

9. (1984) Uncontrolled Hazardous Waste Site Ranking System, A Users Manual (HW-10), U.S. E.P.A.

10. 5/21/85 Letter from Ralph Mosely, Genesco to Tom Tiesler, DSWM; RE: Chemical Waste Site Once Used by a Division of Genesco.

11. 2/19/86 Letter from Frank W. Clifton Jr. Brentwood City Manager to Don Shackleford, TN Div. Superfund; Re: Cost Estimates for Water Lines.

12. 7/28/86 Letter from Ralph Mosely, Genesco to Frank W. Clifton, Jr., Brentwood City Manager; Re: Service Connections.

13. 3/16.87 Conversation of Thomas A. Moss, DSF with Ronnie L. Bowers, DSF; Re: Kennon Site (Genesco) Sample Results, Water Use.

14. (1981) Franklin Quadrangle Topographic Map - 63 NE.

15. (1957) Nolensville Quadrangle Topographic Map - 70NW.

16. 4/24/87 TDH&E Memo from Thomas A. Moss, DSF to Kennon Site (Genesco) File; Re: Ground Water Use Survey/House County for 3 Mile Radius.

17. 3/10/87 Telephone Conversation of Thomas A. Moss, DSF with Robin Bowie, Williamson County Soil Conservation Service; Re: Surface and Groundwater Use for Irrigation in the Area of the Genesco Site.

18. 12/19/85 Letter from Robert M. Thatcher, TWRA to Gordon S. Caruthers, DSWM with attachments: Critical Wildlife Habitat of Tennessee.

19. (1978) Water Quality Management Plan for the Lower Cumberland River Basin, TN Division of Water Quality Control.

20. Commissioners Order: Genesco Inc./Emmett & Rose Kennon. Order No. 863013.

TAM/dje SF #5

EPA

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
TN	D 981473515

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
Kennon (Genesco) Site	Split Log Road

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Brentwood	TN	37027	Williamson	187	6

09 COORDINATES: LATITUDE 35 57 25 . ; LONGITUDE 86 45 44 .

10 TYPE OF OWNERSHIP (Check one): ☒ A. PRIVATE ☐ B. FEDERAL ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL ☐ F. OTHER ☐ G. UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION	02 SITE STATUS	03 YEARS OF OPERATION
1 ,14 ,86 (MONTH DAY YEAR)	☐ ACTIVE ☒ INACTIVE	1978 (BEGINNING YEAR) 1978 (ENDING YEAR) ___ UNKNOWN

04 AGENCY PERFORMING INSPECTION (Check all that apply)

☐ A. EPA ☐ B. EPA CONTRACTOR ______ (Name of firm) ☐ C. MUNICIPAL ☐ D. MUNICIPAL CONTRACTOR ______ (Name of firm)

☒ E. STATE ☐ F. STATE CONTRACTOR ______ (Name of firm) ☐ G. OTHER ______ (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO
Charles Powers	Field Coordinator	Superfund	(615) 741-6287
09 OTHER INSPECTORS	**10 TITLE**	**11 ORGANIZATION**	**12 TELEPHONE NO**
Ronnie Bowers	Environmental Specialist	Superfund	(615) 741-6287
			( )
			( )
			( )
			( )

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO
Wayne McCoy	Consultant-Edge	4301 Hillsboro Rd.; Nash.	(615) 383-3588
Ralph Mosely	Genesco	Genesco Park; Nashville	(615) 367-7314
			( )
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
☒ PERMISSION ☐ WARRANT		

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO
Charles Powers	TDH&E/Superfund	(615) 741-6287

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO	08 DATE
Thomas A. Moss	TDH&E	Superfund	(615) 741-6287	5 ,12 ,87 (MONTH DAY YEAR)

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
TN	D 981473515

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- ☐ A. SOLID
- ☐ B. POWDER, FINES
- ☐ C. SLUDGE
- ☐ D. OTHER ______ (Specify)
- ☐ E. SLURRY
- X F. LIQUID
- ☐ G. GAS

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

- TONS ______
- CUBIC YARDS ______
- NO. OF DRUMS 800

03 WASTE CHARACTERISTICS (Check all that apply)

- X A. TOXIC
- ☐ B. CORROSIVE
- ☐ C. RADIOACTIVE
- X D. PERSISTENT
- X E. SOLUBLE
- ☐ F. INFECTIOUS
- ☐ G. FLAMMABLE
- ☐ H. IGNITABLE
- ☐ I. HIGHLY VOLATILE
- ☐ J. EXPLOSIVE
- ☐ K. REACTIVE
- ☐ L. INCOMPATIBLE
- ☐ M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS	Unknown		Organic solvents.
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS	Unknown		Organic fillers, adhesives.
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
SOL	Toluene	108883	dumped in pits	unknown	
SOL	Tetrachloroethylene	127184	dumped in pits	unknown	
S01	1,1,1 Trichloroethylene	79016	dumped in pits	unknown	
SOL	2 Butanone (MEK)	78933	dumped in pits	unknown	
SOL	Xylene	1330207	dumped in pits	unknown	
SOL	Hexane	110543	dumped in pits	unknown	
SOL	1,1,1 Trichloroethene	79016	dumped in pits	unknown	
SOL	Acetone	67641	dumped in pits	unknown	
SOL	1,2 Dichloroethane	1300216	dumped in pits	unknown	
SOL	Benzene	71432	dumped in pits	unknown	

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

State Superfund Files

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
TN	D 981473515

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 [X] A. GROUNDWATER CONTAMINATION — 02 [X] OBSERVED (DATE: 1/28/86) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 410 — 04 NARRATIVE DESCRIPTION

Hackett Spring sampling shows contamination. Population in area not on public water approximately 410. Site is in Ordovician carbonates with no confining layer for aquifer of concern.

01 [X] B. SURFACE WATER CONTAMINATION — 02 [ ] OBSERVED (DATE:) — [X] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 0 — 04 NARRATIVE DESCRIPTION

Seep from site may enter tributary of Little Harpeth River.

01 [ ] C. CONTAMINATION OF AIR — 02 [ ] OBSERVED (DATE:) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: — 04 NARRATIVE DESCRIPTION

01 [ ] D. FIRE/EXPLOSIVE CONDITIONS — 02 [ ] OBSERVED (DATE:) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: — 04 NARRATIVE DESCRIPTION

01 [ ] E. DIRECT CONTACT — 02 [ ] OBSERVED (DATE:) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: — 04 NARRATIVE DESCRIPTION

01 [X] F. CONTAMINATION OF SOIL — 02 [ ] OBSERVED (DATE:) — [X] POTENTIAL — [ ] ALLEGED
03 AREA POTENTIALLY AFFECTED: Unknown (Acres) — 04 NARRATIVE DESCRIPTION

Seep leaving site. Drums and liquids dumped in pits.

01 [X] G. DRINKING WATER CONTAMINATION — 02 [X] OBSERVED (DATE: 1/28/86) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 410 — 04 NARRATIVE DESCRIPTION

Hackett Spring sampling shows contamination and is used for drinking water supply. Population within three miles of site not on public water approximately 410.

01 [ ] H. WORKER EXPOSURE/INJURY — 02 [ ] OBSERVED (DATE:) — [ ] POTENTIAL — [ ] ALLEGED
03 WORKERS POTENTIALLY AFFECTED: — 04 NARRATIVE DESCRIPTION

01 [ ] I. POPULATION EXPOSURE/INJURY — 02 [ ] OBSERVED (DATE:) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: — 04 NARRATIVE DESCRIPTION

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
TN	D 981473515

II. HAZARDOUS CONDITIONS AND INCIDENTS *(Continued)*

01 ☐ J. DAMAGE TO FLORA — 02 ☐ OBSERVED (DATE ______) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE ______) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION *(include name(s) of species)*

01 ☐ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE ______) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☒ M. UNSTABLE CONTAINMENT OF WASTES *(Spills Runoff Standing liquids, Leaking drums)* — 02 ☐ OBSERVED (DATE ______) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 410
04 NARRATIVE DESCRIPTION

Drums and liquids dumped in pits. By admission of company.

01 ☐ N. DAMAGE TO OFFSITE PROPERTY — 02 ☐ OBSERVED (DATE ______) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE ______) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☒ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE ______) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Drums and liquids dumped in phosphate pits. Site was not a permitted landfill.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

III. TOTAL POPULATION POTENTIALLY AFFECTED: 410

IV. COMMENTS

Residents within a one mile radius of the site have been run municipal water from Brentwood at Genesco's expense.

V. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

State Superfund Files

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDEN[illegible]TION	
01 STATE	[illegible]TE NUMBER
TN	D 981473515

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
☐ A. NPDES				
☐ B. UIC				
☐ C. AIR				
☐ D. RCRA				
☐ E. RCRA INTERIM STATUS				
☐ F. SPCC PLAN				
☐ G. STATE (Specify)				
☐ H. LOCAL (Specify)				
☐ I. OTHER (Specify)				
☒ J. NONE				

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE
☐ A. SURFACE IMPOUNDMENT		
☐ B. PILES		
☐ C. DRUMS, ABOVE GROUND		
☐ D. TANK, ABOVE GROUND		
☐ E. TANK, BELOW GROUND		
☒ F. LANDFILL	800	drums
☐ G. LANDFARM		
☐ H. OPEN DUMP		
☐ I. OTHER ______ (Specify)		

04 TREATMENT (Check all that apply)

- ☐ A. INCENERATION
- ☐ B. UNDERGROUND INJECTION
- ☐ C. CHEMICAL/PHYSICAL
- ☐ D. BIOLOGICAL
- ☐ E. WASTE OIL PROCESSING
- ☐ F. SOLVENT RECOVERY
- ☐ G. OTHER RECYCLING/RECOVERY
- ☐ H. OTHER ______ (Specify)

05 OTHER

☐ A. BUILDINGS ON SITE

06 AREA OF SITE

______ (Acres)

07 COMMENTS

Drums and liquids dumped in phosphate pits on site and covered.

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)

☐ A. ADEQUATE, SECURE ☐ B. MODERATE ☐ C. INADEQUATE, POOR ☒ D. INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC

Drums dumped in phosphate pits on site.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE ☐ YES ☒ NO

02 COMMENTS

VI. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)

State Superfund Files

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
TN	D 981473515

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as applicable)	SURFACE	WELL	02 STATUS: ENDANGERED	AFFECTED	MONITORED	03 DISTANCE TO SITE
COMMUNITY	A ☒	B ☐	A ☐	B ☐	C ☐	A. >3 (mi)
NON-COMMUNITY	C ☐	D ☒	D ☐	E ☒	F ☐	B. <0.25 (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)

☒ A. ONLY SOURCE FOR DRINKING

☐ B. DRINKING (Other sources available) COMMERCIAL, INDUSTRIAL, IRRIGATION (No other water sources available)

☐ C. COMMERCIAL, INDUSTRIAL, IRRIGATION (Limited other sources available)

☐ D. NOT USED, UNUSEABLE

02 POPULATION SERVED BY GROUND WATER 410

03 DISTANCE TO NEAREST DRINKING WATER WELL <0.25 (mi)

04 DEPTH TO GROUNDWATER	05 DIRECTION OF GROUNDWATER FLOW	06 DEPTH TO AQUIFER OF CONCERN	07 POTENTIAL YIELD OF AQUIFER	08 SOLE SOURCE AQUIFER
30 (ft)	Unknown	30 (ft)	Unknown (gpd)	☒ YES ☐ NO

09 DESCRIPTION OF WELLS (including useage, depth, and location relative to population and buildings)

Springs and wells within three miles of site used for drinking water. Well depths average approximately 200 feet.

10 RECHARGE AREA	COMMENTS	11 DISCHARGE AREA	COMMENTS
☐ YES ☐ NO		☐ YES ☐ NO	

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

☒ A. RESERVOIR, RECREATION DRINKING WATER SOURCE

☐ B. IRRIGATION, ECONOMICALLY IMPORTANT RESOURCES

☐ C. COMMERCIAL, INDUSTRIAL

☐ D. NOT CURRENTLY USED

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:	AFFECTED	DISTANCE TO SITE
Tributary of Little Harpeth River	☐	0.1 (mi)
Little Harpeth River	☐	(mi)
	☐	(mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE	TWO (2) MILES OF SITE	THREE (3) MILES OF SITE
A. ______ NO. OF PERSONS	B. ______ NO. OF PERSONS	C. ______ NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION ______ (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE ______

04 DISTANCE TO NEAREST OFF-SITE BUILDING ______ (mi)

05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
TN	D 981473515

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

☐ A. $10^{-6} - 10^{-8}$ cm/sec ☐ B. $10^{-4} - 10^{-6}$ cm/sec ☐ C. $10^{-4} - 10^{-3}$ cm/sec ☐ D. GREATER THAN 10^{-3} cm/sec

02 PERMEABILITY OF BEDROCK (Check one)

☐ A. IMPERMEABLE (Less than 10^{-6} cm/sec) ☐ B. RELATIVELY IMPERMEABLE ($10^{-4} - 10^{-6}$ cm/sec) ☒ C. RELATIVELY PERMEABLE ($10^{-2} - 10^{-4}$ cm/sec) ☐ D. VERY PERMEABLE (Greater than 10^{-2} cm/sec)

03 DEPTH TO BEDROCK	04 DEPTH OF CONTAMINATED SOIL ZONE	05 SOIL pH
10 (ft)	____ (ft)	____

06 NET PRECIPITATION	07 ONE YEAR 24 HOUR RAINFALL	08 SLOPE: SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
48 (in)	3 (in)	4 %	SW	4 %

09 FLOOD POTENTIAL

SITE IS IN ____ YEAR FLOODPLAIN

10 ☐ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS (5 acre minimum)

ESTUARINE A. ____ (mi) OTHER B. ____ (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)

____ (mi)

ENDANGERED SPECIES: ____

13 LAND USE IN VICINITY

DISTANCE TO:

COMMERCIAL/INDUSTRIAL A. ____ (mi)

RESIDENTIAL AREAS; NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES B. ____ (mi)

AGRICULTURAL LANDS: PRIME AG LAND C. ____ (mi) AG LAND D. ____ (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

Site is in rural area on the toe of hill with a number of old farmhouses and newer residences in the vicinity.

VII. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

State Superfund Files

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
TN	D 981473515

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER			
SURFACE WATER			
WASTE			
AIR			
RUNOFF			
SPILL			
SOIL			
VEGETATION			
OTHER			

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS

IV. PHOTOGRAPHS AND MAPS

01 TYPE ☐ GROUND ☐ AERIAL

02 IN CUSTODY OF ______________________ (Name of organization or individual)

03 MAPS ☐ YES ☐ NO

04 LOCATION OF MAPS ______________________

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

Numerous wells have been sampled within the vicinity of the site as well as pits on site.

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

State Superfund Files

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 7 - OWNER INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
TN	D 981473515

II. CURRENT OWNER(S)

01 NAME	02 D+B NUMBER
Emmett Kennon	

03 STREET ADDRESS (P O Box, RFD #, etc.)	04 SIC CODE
2934 Sidco Drive	

05 CITY	06 STATE	07 ZIP CODE
Nashville	TN	37204

01 NAME | 02 D+B NUMBER
03 STREET ADDRESS (P O Box, RFD #, etc.) | 04 SIC CODE
05 CITY | 06 STATE | 07 ZIP CODE

01 NAME | 02 D+B NUMBER
03 STREET ADDRESS (P O Box, RFD #, etc.) | 04 SIC CODE
05 CITY | 06 STATE | 07 ZIP CODE

01 NAME | 02 D+B NUMBER
03 STREET ADDRESS (P O Box, RFD #, etc.) | 04 SIC CODE
05 CITY | 06 STATE | 07 ZIP CODE

PARENT COMPANY (If applicable)

08 NAME | 09 D+B NUMBER
10 STREET ADDRESS (P O Box, RFD #, etc.) | 11 SIC CODE
12 CITY | 13 STATE | 14 ZIP CODE

08 NAME | 09 D+B NUMBER
10 STREET ADDRESS (P O Box, RFD #, etc.) | 11 SIC CODE
12 CITY | 13 STATE | 14 ZIP CODE

08 NAME | 09 D+B NUMBER
10 STREET ADDRESS (P O Box, RFD #, etc.) | 11 SIC CODE
12 CITY | 13 STATE | 14 ZIP CODE

08 NAME | 09 D+B NUMBER
10 STREET ADDRESS (P O Box, RFD #, etc.) | 11 SIC CODE
12 CITY | 13 STATE | 14 ZIP CODE

III. PREVIOUS OWNER(S) (List most recent first)

01 NAME | 02 D+B NUMBER
03 STREET ADDRESS (P O Box, RFD #, etc.) | 04 SIC CODE
05 CITY | 06 STATE | 07 ZIP CODE

01 NAME | 02 D+B NUMBER
03 STREET ADDRESS (P O Box, RFD #, etc.) | 04 SIC CODE
05 CITY | 06 STATE | 07 ZIP CODE

01 NAME | 02 D+B NUMBER
03 STREET ADDRESS (P O Box, RFD #, etc.) | 04 SIC CODE
05 CITY | 06 STATE | 07 ZIP CODE

IV. REALTY OWNER(S) (If applicable, list most recent first)

01 NAME | 02 D+B NUMBER
03 STREET ADDRESS (P O Box, RFD #, etc.) | 04 SIC CODE
05 CITY | 06 STATE | 07 ZIP CODE

01 NAME | 02 D+B NUMBER
03 STREET ADDRESS (P O Box, RFD #, etc.) | 04 SIC CODE
05 CITY | 06 STATE | 07 ZIP CODE

01 NAME | 02 D+B NUMBER
03 STREET ADDRESS (P O Box, RFD #, etc.) | 04 SIC CODE
05 CITY | 06 STATE | 07 ZIP CODE

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

State Superfund Files

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 8 - OPERATOR INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
TN	D 981473515

II. CURRENT OPERATOR (Provide if different from owner)

01 NAME			02 D+B NUMBER
03 STREET ADDRESS (P O Box, RFD #, etc.)			04 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	
08 YEARS OF OPERATION	09 NAME OF OWNER		

OPERATOR'S PARENT COMPANY (If applicable)

10 NAME		11 D+B NUMBER
12 STREET ADDRESS (P O Box, RFD #, etc.)		13 SIC CODE
14 CITY	15 STATE	16 ZIP CODE

III. PREVIOUS OPERATOR(S) (List most recent first; provide only if different from owner)

01 NAME			02 D+B NUMBER
03 STREET ADDRESS (P O Box, RFD #, etc.)			04 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	
08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD		
01 NAME			02 D+B NUMBER
03 STREET ADDRESS (P O Box, RFD #, etc.)			04 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	
08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD		
01 NAME			02 D+B NUMBER
03 STREET ADDRESS (P O Box, RFD #, etc.)			04 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	
08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD		

PREVIOUS OPERATORS' PARENT COMPANIES (If applicable)

10 NAME		11 D+B NUMBER
12 STREET ADDRESS (P O Box, RFD #, etc.)		13 SIC CODE
14 CITY	15 STATE	16 ZIP CODE
10 NAME		11 D+B NUMBER
12 STREET ADDRESS (P O Box, RFD #, etc.)		13 SIC CODE
14 CITY	15 STATE	16 ZIP CODE
10 NAME		11 D+B NUMBER
12 STREET ADDRESS (P O Box, RFD #, etc.)		13 SIC CODE
14 CITY	15 STATE	16 ZIP CODE

IV. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
TN	D 981473515

II. ON-SITE GENERATOR

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P O Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

III. OFF-SITE GENERATOR(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
General Adhesives			

03 STREET ADDRESS (P O Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P O Box, RFD #, etc.)	04 SIC CODE
6100 Centennial Blvd.			

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE
Nashville	TN	37202			

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
Genesco			

03 STREET ADDRESS (P O Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P O Box, RFD #, etc.)	04 SIC CODE
Genesco Park			

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE
Nashville	TN	37202			

IV. TRANSPORTER(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P O Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P O Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P O Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P O Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

V. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

State Superfund Files

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
TN	D 981473515

II. PAST RESPONSE ACTIVITIES

01 ☐ A. WATER SUPPLY CLOSED 02 DATE ________ 03 AGENCY ________
04 DESCRIPTION

01 ☐ B. TEMPORARY WATER SUPPLY PROVIDED 02 DATE ________ 03 AGENCY ________
04 DESCRIPTION

01 ☒ C. PERMANENT WATER SUPPLY PROVIDED 02 DATE 11/86 03 AGENCY Superfund
04 DESCRIPTION
Brentwood water lines run to residents within one mile of site. Paid for by Genesco.

01 ☐ D. SPILLED MATERIAL REMOVED 02 DATE ________ 03 AGENCY ________
04 DESCRIPTION

01 ☐ E. CONTAMINATED SOIL REMOVED 02 DATE ________ 03 AGENCY ________
04 DESCRIPTION

01 ☐ F. WASTE REPACKAGED 02 DATE ________ 03 AGENCY ________
04 DESCRIPTION

01 ☐ G. WASTE DISPOSED ELSEWHERE 02 DATE ________ 03 AGENCY ________
04 DESCRIPTION

01 ☐ H. ON SITE BURIAL 02 DATE ________ 03 AGENCY ________
04 DESCRIPTION

01 ☐ I. IN SITU CHEMICAL TREATMENT 02 DATE ________ 03 AGENCY ________
04 DESCRIPTION

01 ☐ J. IN SITU BIOLOGICAL TREATMENT 02 DATE ________ 03 AGENCY ________
04 DESCRIPTION

01 ☐ K. IN SITU PHYSICAL TREATMENT 02 DATE ________ 03 AGENCY ________
04 DESCRIPTION

01 ☐ L. ENCAPSULATION 02 DATE ________ 03 AGENCY ________
04 DESCRIPTION

01 ☐ M. EMERGENCY WASTE TREATMENT 02 DATE ________ 03 AGENCY ________
04 DESCRIPTION

01 ☐ N. CUTOFF WALLS 02 DATE ________ 03 AGENCY ________
04 DESCRIPTION

01 ☒ O. EMERGENCY DIKING/SURFACE WATER DIVERSION 02 DATE 1/86 03 AGENCY Superfund
04 DESCRIPTION
Genesco had silt fence constructed to limit off site contamination.

01 ☐ P. CUTOFF TRENCHES/SUMP 02 DATE ________ 03 AGENCY ________
04 DESCRIPTION

01 ☐ Q. SUBSURFACE CUTOFF WALL 02 DATE ________ 03 AGENCY ________
04 DESCRIPTION

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
TN	D 981473515

II PAST RESPONSE ACTIVITIES (Continued)

01 ☐ R. BARRIER WALLS CONSTRUCTED — 02 DATE ________ 03 AGENCY ________
04 DESCRIPTION

01 ☐ S. CAPPING/COVERING — 02 DATE ________ 03 AGENCY ________
04 DESCRIPTION

01 ☐ T. BULK TANKAGE REPAIRED — 02 DATE ________ 03 AGENCY ________
04 DESCRIPTION

01 ☐ U. GROUT CURTAIN CONSTRUCTED — 02 DATE ________ 03 AGENCY ________
04 DESCRIPTION

01 ☐ V. BOTTOM SEALED — 02 DATE ________ 03 AGENCY ________
04 DESCRIPTION

01 ☐ W. GAS CONTROL — 02 DATE ________ 03 AGENCY ________
04 DESCRIPTION

01 ☐ X. FIRE CONTROL — 02 DATE ________ 03 AGENCY ________
04 DESCRIPTION

01 ☐ Y. LEACHATE TREATMENT — 02 DATE ________ 03 AGENCY ________
04 DESCRIPTION

01 ☐ Z. AREA EVACUATED — 02 DATE ________ 03 AGENCY ________
04 DESCRIPTION

01 ☐ 1. ACCESS TO SITE RESTRICTED — 02 DATE ________ 03 AGENCY ________
04 DESCRIPTION

01 ☐ 2. POPULATION RELOCATED — 02 DATE ________ 03 AGENCY ________
04 DESCRIPTION

01 ☐ 3. OTHER REMEDIAL ACTIVITIES — 02 DATE ________ 03 AGENCY ________
04 DESCRIPTION

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

State Superfund Files; Geraghty and Miller 1986 Report

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
TN	D 981473515

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ☐ YES ☐ NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

KENNON SITE

Site No. TND 981473575

Reference No. 1

Sampling log

Super Fund File

94-508

KENNON SITE (GENESCO)

Date	EVENT
1/15/86	Monitoring well installation begins.
1/22/86	Areas of suspected pits excavated. Samples of water, waste, and soil obtained.
1/24/86	Further excavation of suspected pits to determine extint of dumping. Monitoring well installation continues. Local person informes state personnel of nearby wells and springs being used for drinking water.
1/28/86	Sampling of offsite Hacket Spring and Fletcher Well. Seep below site is also sampled. Full priority pollutants analysis is requested.
1/29/86	Resampled Fletcher Well (previously sampled 1/28/86) due to concern of owner over taking sample from his holding tank.
2/7/86	Resample Hacket Spring after heavy rain.
2/11/86	Sample Hacket Spring for verification of analysis by State Laboratory. Sample Myatt well also.
2/12/86	Sample offsite drinking water sources - Steve Smith Spring, Pewitt Well, Fischer Well, Johnson Well, Stubblefield Spring.
2/13/86	Sample offsite drinking water sources - Glass Well, Levine Well, Sharp Spring, Reece Smith Spring.
2/14/86	Sample offsite drinking water sources - Foster Well, [illegible] Harpeth River at Moores Lane Bridge.
2/17/86	Sample offsite drinking water sources - Hacket Spring at inside Tap, Allen Well, Primm Spring, Sullivan Well, Legieza Well.
2/18/86	Meeting with Genesco Consultants to discuss sampling plans for Shallow Monitoring Wells onsite. Determined areas of soil borings and offsite shallow monitoring wells. Charcoal filter was installed at Hacket's home by Genesco.
2/21/86	Sample Hacket water supply at Tap after installation of the charcoal filter. Split one sample of Monitoring well #8 onsite with Genesco Consultant. Sample spring below Edgar Johnson's home.
2/24/86	Resample Legiaza well to verify results with State Laboratory.

Date	Event
2/25/86	Sample offsite drinking water sources - Denny Well, Waggoner Well, Lowe Well, Hackett Creek (above spring), Hackett Creek (below Spring), Little Harpeth (below Hackett Creek), Dickie Well, Beyer Well, Clark Well, Dalton Well.
	Sampled offsite drinking water sources - Scott Well, Myatt Well, Mallory Well, Howe Well, Carson Spring.
2/26/86	All individuals whose Analysis had been returned were called and informed of these results. Sampled offsite drinking water sources - Turner Well, Clark Well, Burris Well.
[illegible]/86	Sample offsite drinking water sources - Atkinson Well, Denny Well (resampled), Shaw Well.
3/3/86	Drilling of shallow monitoring wells continue. Genesco consultants are running an Electro Magnetic survey of the site to determine areas of dumping.
3/4/86	Genesco Consultants are running a ground penetrating radar survey. Drill crew is still working. Delivered sample results to residences.
3/5/86	Sample Holt Well.
3/6/86	Talked to several citizens about there wells. (Outside 3 mile radius).
3/7/86	Sample offsite drinking water sources - Mallory Well, Myatt Well, Pewitt Well, Anderson Well.
3/11/86	Sample offsite drinking water sources - Dennison Well, Harmon Well.

RB/lag Customs House #8

KENNON SITE/GENESCO SAMPLING

FAMILY NAME	SPRING/WELL	SAMPLE DATE	RESULTS	REPORT ON FILE
Hackett	Spring	1-28-86	Detected	Yes
		2-7-86	Detected	Yes
		2-11-86	Detected	Yes
		2-17-86	Detected	Yes
		2-21-86	No results yet	
Fletcher	Well	1-29-86	Non-detected	Yes
Myatt	Well	2-11-86	Non-detected	Yes
Smith (Steve)	Spring	2-12-86	Non-detected	Yes
Pewitt	Well	2-12-86	Non-detected	Yes
Fisher	Well	2-16-86	Non-detected	Yes
Johnson	Well	2-16-86	Non-detected	Yes
Stubblefield (Younger & Stubblefield)	Spring	2-12-86	Non-detected	Yes
Glass	Well	2-13-86	Non-detected	Yes
Foster	Well	2-14-86	Non-detected	Yes
Levine	Well	2-13-86	Non-detected	Yes
Sharp/Farrar	Spring	2-13-86	Non-detected	Yes
Smith (Reece)	Spring	2-13-86	Non-detected	Yes
Allen	Well	2-17-86	Non-detected	Yes
Primm	Spring	2-17-86	Non-detected	Yes
Sullivan	Well	2-17-86	Non-detected	Yes
Legieza	Well	2-17-86	Detected	Yes
Little Harpeth	River	2-14-86	Non-detected	Yes

CHRONOLOGY - KENNON (GENESCO SITE)

May 21, 1985	By a letter dated 5/21/85 signed by Ralph Mosley, Genesco Inc., Genesco Park, Nashville, Tennessee 37202 notified the Division of Solid Waste Management of a chemical waste site once used by a division of Genesco, Inc. (General Adhesives). The site is on a farm owned by Emmett N. Kennon. Genesco, Inc. solicited the assistance and approval of TDHE with respects to certain actions. Genesco indicated that some of the waste was buried in barrels (50 - 80 barrels) and the remainder (44,000 gallons) was poured into a phosphate pit or pits. Genesco, Inc. stated that they believed the waste contained water based adhesives and may have contained acetone, ethyl acetate, hexane, methylene chloride, methyethyl ketone, rubber solvent, toluene, 111-trichlorolthane, trichloroethylene, and organic fillers. Genesco, Inc. expressed the intent to excavate, exhume, analyze and dispose of contaminated materials.
May 31, 1985	Don Shackleford, Head of Superfund Section, Barry Atnip, Field Coordinator, Superfund, Ralph Mosley, Genesco, and Wayne McCoy, Resource Consultant met to discuss the site. Genesco indicated that they were not sure if they really had a problem or if there was a problem they believed that it possibly was not very extensive. They agreed to submit an investigation plan by August 15, 1985.
July 2, 1985	Barry Atnip, Coordinator Superfund, Ralph Mosley, Genesco, Ed Wilson and Mark Levy of Geologic Associates, Edgar Johnson (Kennon Foreman) and Emmett Kennon made a vist to the site. This was a preliminary site investigation to visually assess the site. The trip report stated in part that there were no houses near, utility water available to homes in the area and pits were covered and sown in grass.
August 13, 1985	A proposed plan of investigation dated August 9, 1985 was received.
August 22, 1985	Barry Atnip, Coordinator, Superfund, Todd Hughes, Geologist, Superfund and Charles Powers, Coordinator, Superfund met to review the proposed plan of investigation. Several revisions were agreed on as being needed.
August 28, 1985	A letter to Ralph Mosley, Genesco, dated August 28, 1985 signed by Charles H. Powers stating the required revisions of the proposed plan of investigation was mailed.
September 13, 1985	As requested by Ralph Mosely, Genesco. Todd Hughes, Geologist, Wayne McCoy of Resource Consultants and Charles Powers, Coordinator, Superfund met to discuss the required revisions to the site investigation plan.

September 25, 1985	A revised proposed plan of investigation dated September 20, 1985 was received from Genesco with cover letter from Ralph Mosely to Charles Powers. The plan included all the required revisions.
October 2, 1985	By letter dated October 2, 1984 from Charles Powers, Superfund to Ralph Mosely, Genesco, the revised plan of investigation dated September 20, 1985 was approved.
October 9, 1985	Charles Powers, was notified by phone by Ralph Mosely that Task A and B had been started.
December 12, 1985	Charles Powers, Coordinator, Todd Hughes, Geologist, Ralph Mosely, Genesco, Wayne McCoy Rsource Consultants, and Mark Levy of Geologic Associates met for an update on the work. Wayne McCoy stated that Task A and B was completed. They presented a map indicating locations of trenches and proposed locations of wells for installation of piezometers. The start of the well drilling and pit excavation for exact location and testing would start immediately after January 1, 1986.
December 23, 1985	Received from Ralph Mosely, Genesco to Charles Powers, Superfund a ground water monitoring configuration which Todd Hughes had requested.
January 6, 1986	Todd Hughes and Charles Powers sent letter dated January 6, 1986 to Ralph Mosely stating our concerns relative to the kind of pipe proposed to be used and that if the wells were to be used for long term sampling then a diferent kind of pipe must be used.
January 14, 1986	Charles Powers, Coordinator and Ronnie Bowers, Superfund made a site visit and joined Wayne McCoy of Edge and Ralph Mosely, Genesco. Geologic Associates started drilling the wells.
January 17, 1986	Ronnie Bowers, Superfund and Charles Powers, Superfund made a site visit. We saw Mr. Hobbs of Geologic Associates. Two wells had been completed and a third well started.
January 22, 1986	Excavation of the pits for sampling started. Ronnie Bowers and Todd Hughes collected samples for Superfund. Geologic Associates did sampling for Genesco.
January 27, 1986	Meeting with Genesco, Inc. Don Shackleford, Todd Hughes, Ralph Mosely, Wayne McCoy, Ronnie Bowers, Mark Levy and Charles Powers attended. This was a session of updating. It appeared that the problem was much larger than expected. Sampling was discussed. We became aware that there were wells and springs in the area used for drinking water. An

	immediate sampling plan and informatrion to homeowners was initiated. This included immediate samples of Mr. Hackett's and Dr. Fletcher's drinking water.
	Ralph Mosely stated that the transport of waste was by Mr. Kennon driver and truck and possibly a vehicle owned or operated by Genesco.
January 28, 1986	Sampling was started on Mr. Hackett's spring. A complete list of water supply sampling and dates are attached. This list is complete up to 2-14-86. Sampling of water supply is continuing as of February 25, 1986.
February 11, 1986	Laboratory report received relative to Hackett's spring. Genesco, Inc. made plan and commitment to furnish bottled water to all households in the area if they wanted the service.
February 13, 1986	State Laboratory verified sample results of Hacketts Spring. Dr. Michael T. Bruner, Assistant Commissioner, Department of Health and Environment issued a press release.
February 18, 1986	A charcoal filter system installed in Hacketts Water supply.
February 19, 1986	An update meeting with the following present: Levy, Seaborg, Kennon, Mosely, McCoy, Shackleford, Roland, Hughes, Powers, Bowers and Ault. Mr. Shackleford stated that we would prepare an order and would attempt to get it through the system in one (1) month. Mr. Kennon, in response to a question, stated that to the best of his knowledge no one else used the site for a dump.
	A letter signed by James Ault, Director of Superfund dated February 19, 1986 to Mr. Kennon and Ralph Mosely requesting them to respond to us relative to all known responsible parties.
February 24, 1986	Dr. Michael T. Bruner, Assistant Commissioner attended the Brentwood City Commission meeting and presented the state's position.

DS/sdm/CH-8

NATIONAL
NOLOGY
CORPORATION

CAL
SERVICES

5815 Middlebr... • Knoxville, Tennessee 379... • ... 588-64...

CERTIFICATE OF ANALYSIS

TO: IT Corporation
ATTN: Cliff Vaughan
312 Directors Drive
Knoxville, TN 37923

DATE REPORTED: February 6, 1986
PROJECT CODE: ITEK 21683
ORDER NUMBER: TN Contract FA-1353

Sample Description: Kennon Site Pit A, 1-22-86, 1:30

VOLATILE ORGANIC PRIORITY POLLUTANT ANALYSIS

Compound	Concentration (ppb)	Compound	Concentration (ppb)
acrolein	ND	1,1-dichloroethene	290.
acrylonitrile	ND	trans-1,2-dichloroethene	3,000.
benzene	200.	1,2-dichloropropane	ND
bromodichloromethane	ND	cis-1,3-dichloropropene	ND
bromoform	ND	trans-1,3-dichloropropene	ND
bromomethane	ND	ethyl benzene	300.
carbon tetrachloride	ND	methylene chloride	340.
chlorobenzene	14.	1,1,2,2-tetrachloroethane	ND
chloroethane	750.	tetrachloroethene	110.
2-chloroethylvinyl ether	ND	toluene	120.000.
chloroform	ND	1,1,1-trichloroethane	2,000.
chloromethane	ND	1,1,2-trichloroethane	ND
dibromochloromethane	ND	trichloroethene	75.
1,1-dichloroethane	4,300.	vinyl chloride	<10.
1,2-dichloroethane	1,200.		

Remarks: ND = Not detected.
<10. = Detected but at a level less than the quantitation limit. (Numerical value is the quantitation limit.)

Sworn to and subscribed before me this 6th
day of February, 1986
My commission expires January 16, 1988

Notary Public

Approved by

Title: Laboratory Manager

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

5815 Middlebrook Pike • Knoxville, Tennessee 37921 • 615 588 6401

CERTIFICATE OF ANALYSIS

TO IT Corporation
ATTN: Cliff Vaughan
312 Directors Drive
Knoxville, TN 37923

DATE REPORTED February 6, 1986
PROJECT CODE ITEK 21683
ORDER NUMBER TN Contract FA-1353

Sample Description: Kennon Site Pit B, Grab Waste, 1-22-86, 11:30

VOLATILE ORGANIC PRIORITY POLLUTANT ANALYSIS

Compound	Concentration (ppm)	Compound	Concentration (ppm)
acrolein	ND	1,1-dichloroethene	ND
acrylonitrile	ND	trans-1,2-dichloroethene	ND
benzene	ND	1,2-dichloropropane	ND
bromodichloromethane	ND	cis-1,3-dichloropropene	ND
bromoform	ND	trans-1,3-dichloropropene	ND
bromomethane	ND	ethyl benzene	ND
carbon tetrachloride	ND	methylene chloride	<20,000.
chlorobenzene	ND	1,1,2,2-tetrachloroethane	ND
chloroethane	ND	tetrachloroethene	<20,000.
2-chloroethylvinyl ether	ND	toluene	570,000.
chloroform	ND	1,1,1-trichloroethane	<20,000.
chloromethane	ND	1,1,2-trichloroethane	ND
dibromochloromethane	ND	trichloroethene	<20,000.
1,1-dichloroethane	ND	vinyl chloride	ND
1,2-dichloroethane	ND		

Remarks: ND = Not detected.
<20,000. = Detected but at a level less than the quantitation limit. (Numerical valu
is the quantitation limit.)

Sworn to and subscribed before me this 6th
day of February, 1986
My commission expires January 16, 1988

Notary Public

Approved by

Laboratory Manager
Title

93-9-85

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

5815 Middlebrook Pike • Knoxville, Tennessee 37921 • 615-588-6401

CERTIFICATE OF ANALYSIS

TO: IT Corporation
ATTN: Cliff Vaughan
312 Directors Drive
Knoxville, TN 37923

DATE REPORTED: February 6, 1986
PROJECT CODE: ITEK 21683
ORDER NUMBER: TN Contract FA-1353

Sample Description: Kennon Site Pit B, Grab Soil, 1-22-86, 11:30

VOLATILE ORGANIC PRIORITY POLLUTANT ANALYSIS

Compound	Concentration (ppb)	Compound	Concentration (ppb)
acrolein	ND	1,1-dichloroethene	3,300.
acrylonitrile	ND	trans-1,2-dichloroethene	1,300.
benzene	1,000.	1,2-dichloropropane	ND
bromodichloromethane	ND	cis-1,3-dichloropropene	ND
bromoform	ND	trans-1,3-dichloropropene	ND
bromomethane	ND	ethyl benzene	19,000.
carbon tetrachloride	ND	methylene chloride	3,300.
chlorobenzene	530.	1,1,2,2-tetrachloroethane	ND
chloroethane	ND	tetrachloroethene	220,000.
2-chloroethylvinyl ether	ND	toluene	6,200,000.
chloroform	<250.	1,1,1-trichloroethane	160,000.
chloromethane	ND	1,1,2-trichloroethane	ND
dibromochloromethane	ND	trichloroethene	6,900.
1,1-dichloroethane	950.	vinyl chloride	ND
1,2-dichloroethane	11,000.		

Remarks: ND = Not detected.
<250. = Detected but at a level less than the quantitation limit. (Numerical valu
is the quantitation limit.)

Sworn to and subscribed before me this 6th
day of February, 1986
My commission expires January 16, 1988

Notary Public

Approved by

Laboratory Manager
Title

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ANALYTICAL SERVICES

5815 Middlebro... Pike • Knoxville Tennessee 3?921 • 6...

CERTIFICATE OF ANALYSIS

TO: IT Corporation
ATTN: Cliff Vaughan
312 Directors Drive
Knoxville, TN 37923

DATE REPORTED February 10, 1986
PROJECT CODE ITEK 21702
ORDER NUMBER IT Contract FA-13..

Sample Description: Two (2) water samples and one (1) soil sample received January 29, 1986

Concentration units are mg/liter (ppm) unless otherwise stated

PRIORITY POLLUTANT METALS

Kennon Site, 1-28-86

	Field #1 Hackett Spring 9:15	Field #3, Seep (water) 10:30	Field #3, Seep (soil) 10:30 (per gram, ppm)
Antimony	<0.001	<0.002*	<0.05
Arsenic	<0.001	0.217	18.
Beryllium	<0.002	0.010	0.69
Cadmium	<0.001	<0.001	<0.03
Chromium	<0.01	0.15	9.3
Copper	<0.002	0.088	6.5
Lead	<0.01	0.12	7.6
Mercury	<0.001	<0.001	0.048
Nickel	<0.01	<0.01	8.3
Selenium	<0.001	<0.03*	<0.3*
Silver	<0.002	<0.002	<0.1
Thallium	<0.02	<0.02	<0.6
Zinc	<0.001	0.519	30.
Cyanide	<0.01	0.01	0.20

* Detection limits higher than normal due to sample matrix interferences.

Copy to: Ronnie Bowers
Tennessee Department of Health & Environment
Division of Solid Waste Management
701 Broadway Street, 4th Floor Customs House
Nashville, TN 37219-5403

Sworn to and subscribed before me this 10th
day of February, 1986
My commission expires January 16, 1988

Notary Public

Approved by

Laboratory Director

Title

93-9-2

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CORPORATION

ANALYTICAL
SERVICES

5815 Middlebrook Pike • ... Tennessee 37921 • (...) ...6401

CERTIFICATE OF ANALYSIS

TO: IT Corporation
ATTN: Cliff Vaughan
312 Directors Drive
Knoxville, TN 37923

DATE REPORTED: February 10, 1986
PROJECT CODE: ITEK 21702
ORDER NUMBER: TN Contract FA-1353

Sample Description: Kennon Site, Field #1, Hackett Spring, 1-28-86, 9:15

VOLATILE ORGANIC PRIORITY POLLUTANT ANALYSIS

Compound	Concentration (ppb)	Compound	Concentration (ppb)
acrolein	ND	1,1-dichloroethene	ND
acrylonitrile	ND	trans-1,2-dichloroethene	10.
benzene	ND	1,2-dichloropropane	ND
bromodichloromethane	ND	cis-1,3-dichloropropene	ND
bromoform	ND	trans-1,3-dichloropropene	ND
bromomethane	ND	ethyl benzene	ND
carbon tetrachloride	ND	methylene chloride	ND
chlorobenzene	ND	1,1,2,2-tetrachloroethane	ND
chloroethane	ND	tetrachloroethene	ND
2-chloroethylvinyl ether	ND	toluene	ND
chloroform	ND	1,1,1-trichloroethane	ND
chloromethane	ND	1,1,2-trichloroethane	ND
dibromochloromethane	ND	trichloroethene	ND
1,1-dichloroethane	<10.	vinyl chloride	ND
1,2-dichloroethane	ND		

Remarks: ND = Not detected.
<10. = Detected but at a level less than the quantitation limit. (Numerical value is the quantitation limit.)

Copy to: Ronnie Bowers
Tennessee Department of Health & Environment
Division of Solid Waste Management
701 Broadway Street, 4th Floor Customs House
Nashville, TN 37219-5403

Sworn to and subscribed before me this 10th day of February, 1986
My commission expires January 16, 1988

Notary Public

Approved by
Laboratory Director
Title

93-9-85

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5615 Middle... ...ke • ... Tennessee 37921 • 615-588-6401

FEB ... 1986

CERTIFICATE OF ANALYSIS

TO: IT Corporation
ATTN: Cliff Vaughan
312 Directors Drive
Knoxville, TN 37923

DATE REPORTED: February 11, 1986
PROJECT CODE: ITEK 21765
ORDER NUMBER: TN Contract FA-1363
Job #41504

Sample Description: Kennon Site, Hacket Spring, Field #1, 2-7-86, 9:00

VOLATILE ORGANIC PRIORITY POLLUTANT ANALYSIS

Compound	Concentration (ppb)	Compound	Concentration (ppb)
acrolein	ND	1,1-dichloroethene	ND
acrylonitrile	ND	trans-1,2-dichloroethene	70.
benzene	ND	1,2-dichloropropane	ND
bromodichloromethane	ND	cis-1,3-dichloropropene	ND
bromoform	ND	trans-1,3-dichloropropene	ND
bromomethane	ND	ethyl benzene	ND
carbon tetrachloride	ND	methylene chloride	ND
chlorobenzene	ND	1,1,2,2-tetrachloroethane	ND
chloroethane	<10.	tetrachloroethene	ND
2-chloroethylvinyl ether	ND	toluene	ND
chloroform	ND	1,1,1-trichloroethane	13.
chloromethane	ND	1,1,2-trichloroethane	ND
dibromochloromethane	ND	trichloroethene	<10.
1,1-dichloroethane	26.	vinyl chloride	ND
1,2-dichloroethane	<10.		

Remarks: ND = Not detected.
<10. = Detected but at a level less than the quantitation limit. (Numerical val... is the quantitation limit.)

Copy to: Ronnie Bowers
Tennessee Department of Health & Environment
Division of Solid Waste Management
701 Broadway Street, 4th Floor Customs House
Nashville, TN 37219-5403

Sworn to and subscribed before me this 11th
day of February, 1986
My commission expires January 15, 1988

Notary Public

Approved by

Laboratory Manager

Title

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... ...ICE
... Middlebrook Pike • ... Tennessee 37921 • 615-588-6401

CERTIFICATE OF ANALYSIS

TO: IT Corporation
ATTN: Cliff Vaughan
312 Directors Drive
Knoxville, TN 37923

DATE REPORTED: February 26, 1986
PROJECT CODE: ITEK 21854
ORDER NUMBER: TN Contract FA-1353

Sample Description: Kennon Site, Field #17, Well #8, 2-21-86, 10:30

VOLATILE ORGANIC PRIORITY POLLUTANT ANALYSIS

Compound	Concentration (ppb)	Compound	Concentration (ppb)
acrolein	ND	1,1-dichloroethene	13.
acrylonitrile	ND	trans-1,2-dichloroethene	350.
benzene	<10.	1,2-dichloropropane	ND
bromodichloromethane	ND	cis-1,3-dichloropropene	ND
bromoform	ND	trans-1,3-dichloropropene	ND
bromomethane	ND	ethyl benzene	<10.
carbon tetrachloride	ND	methylene chloride	<10.
chlorobenzene	ND	1,1,2,2-tetrachloroethane	ND
chloroethane	370.	tetrachloroethene	<10.
2-chloroethylvinyl ether	ND	toluene	1,600.
chloroform	<10.	1,1,1-trichloroethane	57.
chloromethane	ND	1,1,2-trichloroethane	ND
dibromochloromethane	ND	trichloroethene	ND
1,1-dichloroethane	200.	vinyl chloride	ND
1,2-dichloroethane	22.		

Remarks: ND = Not detected.
<10. = Detected but at a level less than the quantitation limit. (Numerical value is the quantitation limit.)

Copy to: Ronnie Bowers
Tennessee Department of Health & Environment
Division of Solid Waste Management
701 Broadway Street, 4th Floor Customs House
Nashville, TN 37219-5403

Sworn to and subscribed before me this 26th
day of February, 1986
My commission expires January 16, 1988

Notary Public

Approved by

Laboratory Manager
Title

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

5815 Middlebrook Pike • Knoxville, Tennessee 37921 • 615 588 6401

CERTIFICATE OF ANALYSIS

TO: IT Corporation
ATTN: Cliff Vaughan
312 Directors Drive
Knoxville, TN 37923

DATE REPORTED: February 21, 1986
PROJECT CODE: ITEK 21797
ORDER NUMBER: TN Contract FA-1353

Sample Description: Field #4, Kennon Site, Johnson Well, 2-16-86, 4:00

VOLATILE ORGANIC PRIORITY POLLUTANT ANALYSIS

Compound	Concentration (ppb)	Compound	Concentration (ppb)
acrolein	ND	1,1-dichloroethene	ND
acrylonitrile	ND	trans-1,2-dichloroethene	ND
benzene	ND	1,2-dichloropropane	ND
bromodichloromethane	ND	cis-1,3-dichloropropene	ND
bromoform	ND	trans-1,3-dichloropropene	ND
bromomethane	ND	ethyl benzene	ND
carbon tetrachloride	ND	methylene chloride	ND
chlorobenzene	ND	1,1,2,2-tetrachloroethane	ND
chloroethane	ND	tetrachloroethene	ND
2-chloroethylvinyl ether	ND	toluene	ND
chloroform	ND	1,1,1-trichloroethane	ND
chloromethane	ND	1,1,2-trichloroethane	ND
dibromochloromethane	ND	trichloroethene	ND
1,1-dichloroethane	ND	vinyl chloride	ND
1,2-dichloroethane	ND		

Remarks: ND = Not detected.
<10. = Detected but at a level less than the quantitation limit. (Numerical value is the quantitation limit.)

Copy to: Ronnie Bowers
Tennessee Department of Health & Environment
Division of Solid Waste Management
701 Broadway Street, 4th Floor Customs House
Nashville, TN 37219-5403

Sworn to and subscribed before me this 21st day of February, 1986
My commission expires January 16, 1988

Notary Public

Approved by

Laboratory Manager

Title

93-9-85

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

5815 Middlebrook Pike • Knoxville, Tennessee 37921 • 615-588-6401

CERTIFICATE OF ANALYSIS

TO: IT Corporation
ATTN: Cliff Vaughan
312 Directors Drive
Knoxville, TN 37923

DATE REPORTED: February 6, 1986
PROJECT CODE: ITEK 21683
ORDER NUMBER: TN Contract FA-1353

Sample Description: Kennon Site Pit B, Grab Soil, 1-22-86, 11:30

PESTICIDES AND PCB's - PRIORITY POLLUTANT ANALYSIS

Compound	Concentration (ppm)	Compound	Concentration (ppm)
aldrin	ND	endrin aldehyde	ND
α-BHC	ND	heptachlor	ND
β-BHC	ND	heptachlor epoxide	ND
γ-BHC (lindane)	ND	PCB-(Aroclor)-1242	ND
δ-BHC	ND	PCB-(Aroclor)-1254	ND
chlordane	ND	PCB-(Aroclor)-1221	ND
4,4'-DDT	ND	PCB-(Aroclor)-1232	ND
4,4'-DDE	ND	PCB-(Aroclor)-1248	ND
4,4'-DDD	ND	PCB-(Aroclor)-1260	ND
dieldrin	ND	PCB-(Aroclor)-1016	ND
α-endosulfan	ND	toxaphene	ND
β-endosulfan	ND	methoxychlor	ND
endosulfan sulfate	ND		
endrin	ND		

Remarks: ND = Not detected at a level of 1.0 ppm (parts per million).

Sworn to and subscribed before me this 6th day of February, 1986
My commission expires January 16, 1988

Notary Public

Approved by

Title Laboratory Manager

93-9-85

A[illegible] LYT[illegible]C[illegible]
S[illegible]RVICES
[illegible] Pike • Knoxville, Tennessee [illegible]7921 • 615 588-6401

CERTIFICATE OF ANALYSIS

TO IT Corporation
ATTN: Cliff Vaughan
[illegible]12 Directors Dr[illegible]
Knoxville, TN 37[illegible]3

DATE REPORTED: March 25, 1986
PROJECT CODE: ITEK 22002
ORDER NUMBER: TN Contract FA-1353

Sample Description: Kennon Site, Hackett Spring, 3-1[illegible]-86, 2:00

VOLATILE ORGANIC PRIORITY POLLUTANT ANALYSIS

Compound	Concentration (ppb)	Compound	Concentration (ppb)
acrolein	ND	1,1-dichloroethene	ND
acrylonitrile	ND	trans-1,2-dichloroethene	66.
benzene	ND	1,2-dichloropropane	ND
bromodichloromethane	ND	cis-1,3-dichloropropene	ND
bromoform	ND	trans-1,3-dichloropropene	ND
bromomethane	ND	ethyl benzene	ND
carbon tetrachloride	ND	methylene chloride	ND
chlorobenzene	ND	1,1,2,2-tetrachloroethane	ND
chloroethane	<10.	tetrachloroethene	ND
2-chloroethylvinyl ether	ND	toluene	ND
chloroform	ND	1,1,1-trichloroethane	2[illegible].
chloromethane	ND	1,1,2-trichloroethane	ND
dibromochloromethane	ND	trichloroethene	<10.
1,1-dichloroethane	26.	vinyl chloride	ND
1,2-dichloroethane	<10.		

Remarks: ND = Not detected.
<10. = Detected but at a level less than the quantitation limit. (Numerical value is the quantitation limit.)

Copy to: Ronnie Bowers
Tennessee Department of Health & Environment
Division of Solid Waste Management
701 Broadway Street, 4th Floor Customs House
Nashville, TN 37219-5403

Sworn to and subscribed before me this 25th
day of March, 1986
My commission expires January 16, 1988

Notary Public

Approved by

Laboratory Manager
Title

Accredited by the American Association for Laboratory Accreditation in the chemical field of testing, as listed in the current AALA Directory of Accredited Laboratories

53-5-85

SERVICES R03

5815 Middlebrook Pike • Knoxville, Tennessee • • 588-6401

CERTIFICATE OF ANALYSIS

TO: IT Corporation
ATTN: Cliff Vaughan
312 Directors Drive
Knoxville, TN 37923

DATE REPORTED April 1, 1986
PROJECT CODE ITEK 22038
ORDER NUMBER TN Contract [illegible]4-1353
Job #40937[illegible].71.89

Sample Description: Field #61, Kennon Site, Hackett Sp., 3-19-86, 2:15

VOLATILE ORGANIC PRIORITY POLLUTANT ANALYSIS

Compound	Concentration (ppb)	Compound	Concentration (ppb)
acrolein	ND	1,1-dichloroethene	ND
acrylonitrile	ND	trans-1,2-dichloroethene	41.
benzene	ND	1,2-dichloropropane	ND
bromodichloromethane	ND	cis-1,3-dichloropropene	ND
bromoform	ND	trans-1,3-dichloropropene	ND
bromomethane	ND	ethyl benzene	ND
carbon tetrachloride	ND	methylene chloride	<10.
chlorobenzene	ND	1,1,2,2-tetrachloroethane	ND
chloroethane	<10.	tetrachloroethene	ND
2-chloroethylvinyl ether	ND	toluene	ND
chloroform	ND	1,1,1-trichloroethane	[illegible]
chloromethane	ND	1,1,2-trichloroethane	ND
dibromochloromethane	ND	trichloroethene	<10.
1,1-dichloroethane	24.	vinyl chloride	ND
1,2-dichloroethane	ND		

Remarks: ND = Not detected.
<10. = Detected but at a level less than the quantitation limit. (Numerical value is the quantitation limit.)

Copy to: Ronnie Bowers
Tennessee Department of Health & Environment
Division of Solid Waste Management
701 Broadway Street, 4th Floor Customs House
Nashville, TN 37219-5403

Sworn to and subscribed before me this 1st
day of April, 1986
My commission expires January 16, 1988

Notary Public

Approved by

Laboratory Manager
Title

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

5815 Middlebrook Pike • Knoxville, Tennessee 37921 • 615 588-6401

CERTIFICATE OF ANALYSIS

TO: IT Corporation
ATTN: Cliff Vaughan
312 Directors Drive
Knoxville, TN 37923

DATE REPORTED: June 10, 1986
PROJECT CODE: ITEK 22457
ORDER NUMBER: TN Contract FA-1353
PAGE 5 OF 5
Job #409374.01.71.69

Sample Description: Kennon Site, Field #99, Genesco Well #9, 5-31-86, 9:40

VOLATILE ORGANIC PRIORITY POLLUTANT ANALYSIS

Compound	Concentration (ppb)	Compound	Concentration (ppb)
benzene	ND	1,1-dichloroethene	ND
bromodichloromethane	ND	trans-1,2-dichloroethene	2,000.
bromoform	ND	1,2-dichloropropane	ND
bromomethane	ND	cis-1,3-dichloropropene	ND
carbon tetrachloride	ND	trans-1,3-dichloropropene	ND
chlorobenzene	ND	ethyl benzene	ND
chloroethane	1,200.	methylene chloride	ND
2-chloroethylvinyl ether	ND	1,1,2,2-tetrachloroethane	ND
chloroform	ND	tetrachloroethene	ND
chloromethane	ND	toluene	39,000.
dibromochloromethane	ND	1,1,1-trichloroethane	<1,000.
1,1-dichloroethane	1,600.	1,1,2-trichloroethane	ND
1,2-dichloroethane	<1,000.	trichloroethene	ND
		vinyl chloride	ND

Remarks: ND = Not detected.
<1,000. = Detected but at a level less than the quantitation limit. (Numerical value is the quantitation limit.)

Copy to: Ronnie Bowers
Tennessee Department of Health & Environment
Division of Solid Waste Management
701 Broadway Street, 4th Floor Customs House
Nashville, TN 37219-5403

Sworn to and subscribed before me this 10th day of June, 1986
My commission expires January 16, 1988

[signature]
Notary Public

[signature]
Approved by

Laboratory Manager
Title

93-9-85

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

5815 Middlebrook Pike • Knoxville, Tennessee 37921 • 615-588-6401

CERTIFICATE OF ANALYSIS

TO: IT Corporation
ATTN: Cliff Vaughan
312 Directors Drive
Knoxville, TN 37923

DATE REPORTED: February 10, 1986
PROJECT CODE: ITEK 21702
ORDER NUMBER: TN Contract FA-1353

Sample Description: Two (2) water samples and one (1) soil sample received January 29, 1986

Concentration units are mg/liter (ppm) unless otherwise stated

PRIORITY POLLUTANT METALS

	Kennon Site, 1-28-86		
	Field #1 Hackett Spring 9:15	Field #3, Seep (water) 10:30	Field #3, Seep (soil) 10:30 (ug/gram, ppm)
Antimony	<0.001	<0.002*	<0.05
Arsenic	<0.001	0.217	18.
Beryllium	<0.002	0.010	0.69
Cadmium	<0.001	<0.001	<0.03
Chromium	<0.01	0.15	9.3
Copper	<0.002	0.088	6.5
Lead	<0.01	0.12	7.6
Mercury	<0.001	<0.001	0.048
Nickel	<0.01	<0.01	8.3
Selenium	<0.001	<0.03*	<0.3*
Silver	<0.002	<0.002	<0.1
Thallium	<0.02	<0.02	<0.6
Zinc	<0.001	0.519	30.
Cyanide	<0.01	0.01	0.20

* Detection limits higher than normal due to sample matrix interferences.

Copy to: Ronnie Bowers
Tennessee Department of Health & Environment
Division of Solid Waste Management
701 Broadway Street, 4th Floor Customs House
Nashville, TN 37219-5403

Sworn to and subscribed before me this 10th day of February, 1986
My commission expires January 16, 1988

Notary Public

Approved by

Laboratory Director
Title

93-9-85

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

5815 Middlebrook Pike • Knoxville Tennessee 37921 • 615-588-6401

CERTIFICATE OF ANALYSIS

TO IT Corporation
ATTN: Cliff Vaughan
312 Directors Drive
Knoxville, TN 37923

DATE REPORTED February 6, 1986
PROJECT CODE ITEK 21683
ORDER NUMBER TN Contract FA- 1353

Sample Description: Two (2) soil samples and one (1) waste sample received January 24, 1986

Concentration units are µg/gram (ppm)

PRIORITY POLLUTANT METALS

	Grab Waste Pit B 1-22-86, 11:30	Pit A 1-22-86, 1:30	Pit B 1-22-86, 11:30
Antimony	0.10	<0.1	<0.1
Arsenic	<0.1	9.0	9.0
Beryllium	<0.1	1.2	1.1
Cadmium	0.25	<0.1	<0.1
Chromium	14.	14.	14.
Copper	0.80	7.5	4.4
Lead	1.2	8.0	8.2
Mercury	<0.1	<0.1	0.12
Nickel	<0.7	11.	7.3
Selenium	<0.8	<1.	<1.
Silver	<0.1	<0.2	<0.2
Thallium	<1.	<2.	<2.
Zinc	560.	33.	37.
Total Cyanide	0.07	0.10	0.26

Sworn to and subscribed before me this 6th day of February, 1986

My commission expires January 16, 1988

Notary Public

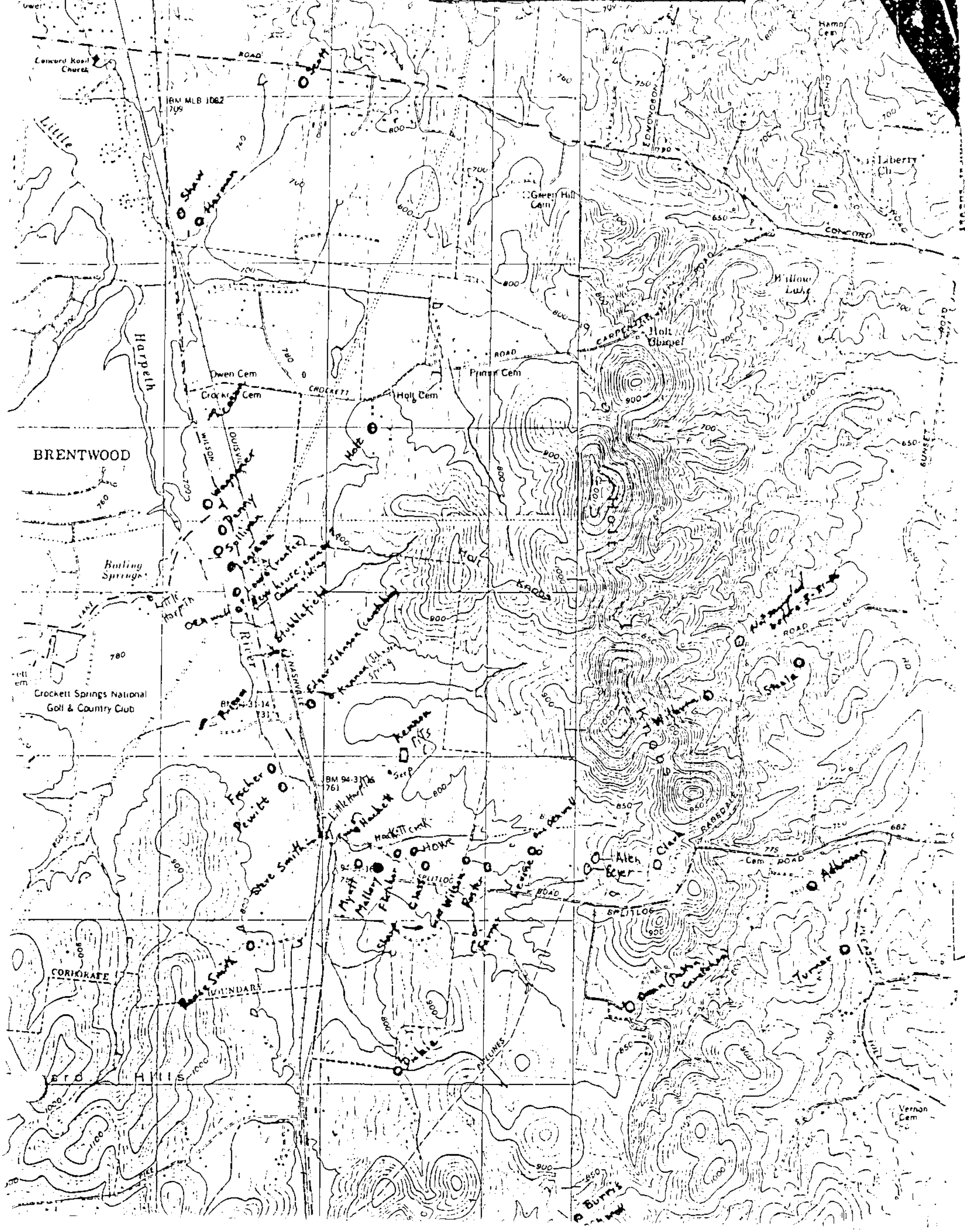
Approved by

Laboratory Manager

Title

93-9-85

SAMPLE POINTS



KENNON SITE

Site No. TND 981473575

Reference No. 2

GERAGHTY & MILLER, INC.

Plan for Investigation of the Kennon Site,
Brentwood, Tennessee

Prepared for

GENESCO, INC.
Nashville, Tennessee

December 1986

PROJECT # 01088BR1

GERAGHTY & MILLER, INC.
Ground-Water Consultants
140 East Division Road, Building A, Suite 2
Oak Ridge, Tennessee 37830

TABLE OF CONTENTS

GERAGHTY & MILLER, INC.

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INTRODUCTION

In June of 1986, Geraghty & Miller, Inc. (G&M) was retained by Genesco, Inc. (Genesco) to conduct a ground-water investigation of the Kennon site in Brentwood, Tennessee, where approximately 800 barrels of industrial waste materials were disposed. Preliminary investigations have been made by Genesco and their consultants, Geologic Associates (GA), and the State Superfund Division of the Tennessee Department of Health and Environment (TDHE). In addition, the U. S. Geological Survey (USGS) is presently conducting a regional study of the area.

From this work, areas of waste disposal have been approximately delineated, a network of shallow monitor wells has been installed and sampled to determine the possible distribution of disposed substances in the surficial soil and shallow bedrock aquifer. Area domestic wells and springs have also been sampled to determine possible off-site migration of contaminants. However, additional data are needed to further delineate the disposal pit areas and shallow plume, and to characterize the deeper hydrogeologic system and determine whether any contamination of the deeper bedrock aquifer has occurred.

This plan sets forth a program of additional remote sensing, test boring, monitor well installation, and soil and water sampling, which, when implemented, will provide better understanding of the shallow and deeper ground-water flow system and the extent of possible contamination, and will provide the basis for a hazard evaluation and the design of remedial measures. TDHE will be notified in advance of any additions, deletions or changes to the proposed work plan. Seven days advance notice will be given to TDHE of the initiation of work at the site.

BACKGROUND

General Setting and Site History

Farming and Residential Development

The Kennon property is located in a rural part of Williamson County in which livestock is the most important farming commodity. Cash crops include tobacco, hay, corn, and small grains (U.S. Soil Conservation Service, 1961). The fenced tract containing the disposal area is currently used as a pasture for cattle. It is not known whether the tract has ever been cultivated or whether fertilizers or pesticides have ever been applied to this or adjoining tracts.

A number of old farmhouses are located in the Wilson Pike/Split Log Road area. In addition, several new residences have been constructed over the past five years. Most of the new homes are situated on four to ten acre tracts.

Residential water needs have historically been supplied by individual wells, springs, and cisterns. Domestic wells in the area are generally cased 20 to 25 feet (ft) into the bedrock with an unscreened open hole extending to depths of a few hundred feet to more than 2000 ft. Construction data for individual domestic wells are summarized in Table 1. Locations of area domestic water supply wells and springs are shown in Figure 1. State records have been searched for

TABLE 1

CONSTRUCTION & STATUS OF DOMESTIC WELLS

WELL OWNER	DATE COMPLETED	CASING DIAM. (IN)	DEPTH OF CASING (FT)	TOTAL DEPTH (FT)	OPEN INTERVAL FORMATION	PRINCIPLE WATER BEARING ZONE (DEPTH FT)	STATUS	DRILLER
Allen				68-80			Residential	
Beyer	04/05/69	7	20	200	B,H,C	195	Residential	
Boswell	08/14/85	6.25	20	1050	H,.L,R,P,M,K	1020	Residential	Henry Drilling Co.
Denny	10/18/84	6.25	21	350	H,C,L	277	Residential	Henry Drilling Co.
Fischer	06/27/84	6.25	21	240	H,C,L	70,110	Residential	Henry Drilling Co.
Fletcher (1)				200	H,C,L	115-117	Residential	Henry Drilling Co.
Fletcher (2)				198	H,C,L	23, 115-116	Residential	Henry Drilling Co.
Foster (1)	08/08/85	6.25	20	260	H,C,L	146	Heat Pump	Henry Drilling Co.
Foster (2)	05/22/84	6.25	21	450	H,C,L.R	230	Residential	Henry Drilling Co.
Gore	06/04/70	6	20	75	H	65	Residential	
Holt		6	25	36	B	36	Residential	
Hall	03/03/86	6.25	24	400	H,C,L	80	Residential	Henry Drilling Co.
Howe				220	H,C,L	130	Residential	
Johnson	12/30/72	6	20	198	H,C	184	Residential	
Levine (1)	08/17/74	6	22	1235	H,C,L,R,P,M,K	1170	Residential	
Levine (2)				2200	H,C,L,R,P,M,K			
Myatt				73	H	18	Residential	
Legieza						28	Residential	
Mallory				350	H,C,L,R	112	Non-Potable	
Pewitt	09/16/81	6.25	21	105	H,C	105	Residential	Herman Clark Water Wells
Sullivan						28	Residential	
Wilson	02/28/84	6.25	21	260	B,H,C	160	Residential	Henry Drilling Co.

B = Bigby-Cannon Formation
H = Hermitage Formation
C = Carters Formation
L - Lebanon Formation

R = Ridley Formation
P = Pierce Formation
M = Murfreesboro Formation
K = Knox Group

Information Provided by TDHE, Division of Ground Water Protection.

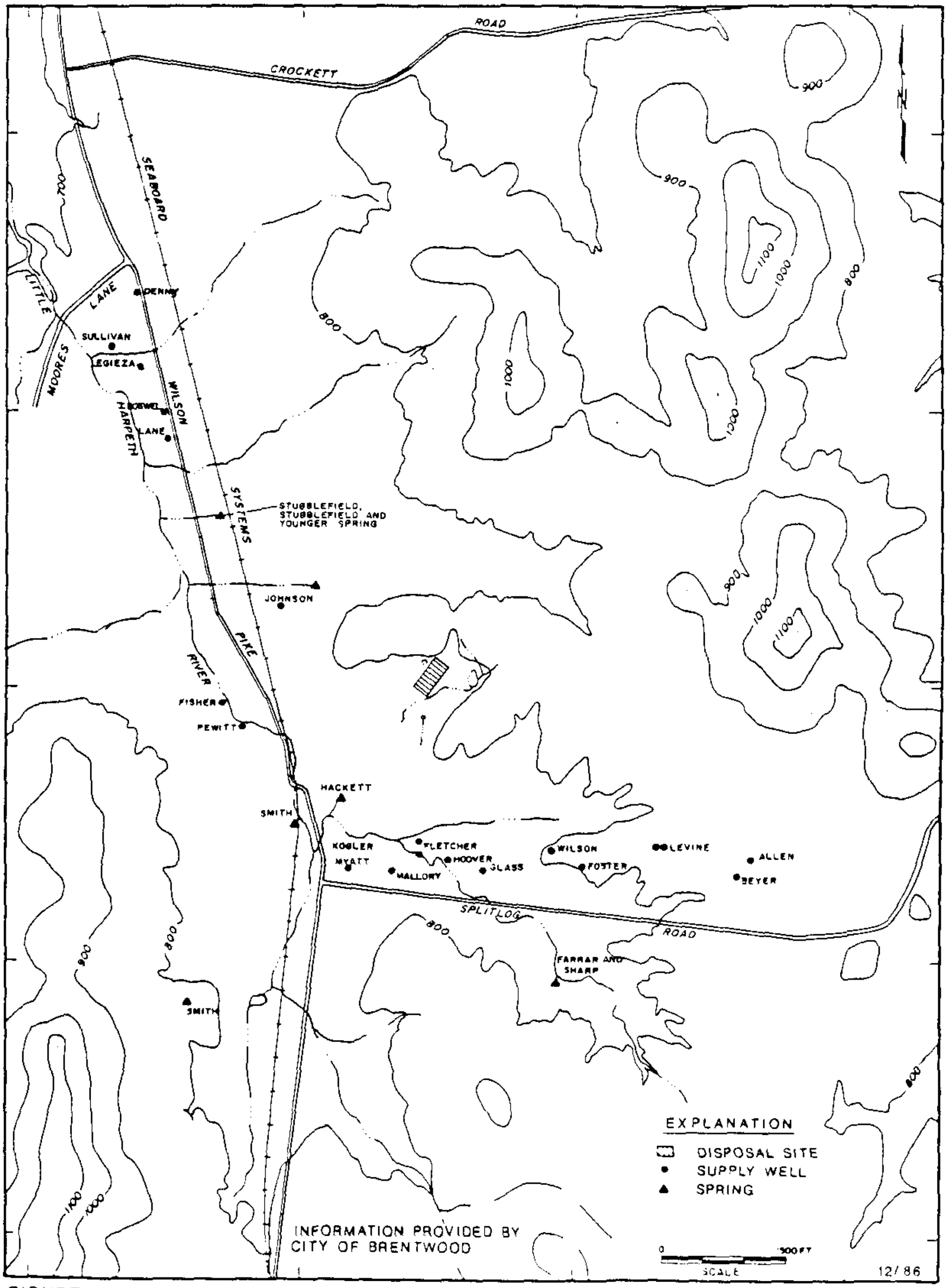

FIGURE 1. DOMESTIC WELLS AND SPRINGS IN THE VICINITY OF THE KENNON SITE

additional wells in the vicinity that may be abandoned and none have been found. Aerial photographs from 1946, 1967, 1969 , 1976, and 1980 do not show any old farm houses which may have had wells other than those listed in Table 1. A water main from the City of Brentwood is being constructed to serve the residents along part of Wilson Pike and Split Log Road.

Septic tanks and leach fields are used for disposal of domestic waste-water in the area. State regulations require that leach fields be located a minimum of 50 ft from wells and springs which serve as domestic water supplies; septic tanks may be located closer than 50 ft to domestic wells and springs.

Industrial Facilities

An electrical power substation is located on Wilson Pike just south of Moore's Lane (Figure 2). It was constructed around 1981 by TVA and is operated by Middle Tennessee Electric Co-op, which provides electric service to the area. One transformer is currently in operation to convert 161 kilovolt power from the TVA Power line to 14 kilovolt power which is distributed to local users.

Seaboard Systems Railroad owns and operates a line that follows the western boundary of the Kennon property (Figure 2). This track was formerly operated by the Louisville and Nashville Railroad, Lewisburg Division, and has been in

Geraghty & Miller, Inc.

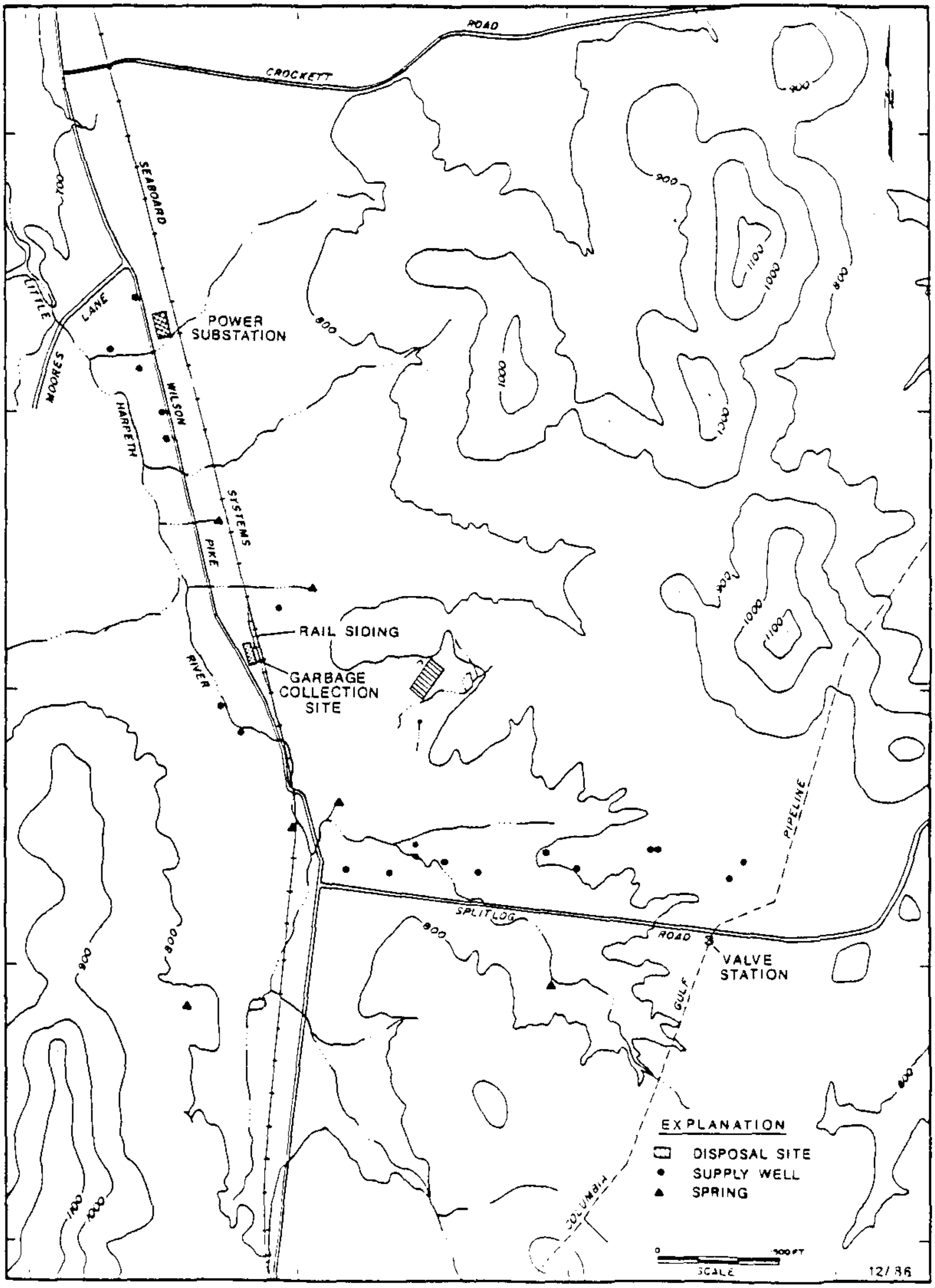

FIGURE 2 INDUSTRIAL FACILITIES IN THE VICINITY OF THE KENNON SITE

service since approximately 1914. The Moran Rail Siding, consisting of a passing track and a public team track, is located near the Johnson residence. Rail sidings such as this are commonly used for loading, for car and equipment repairs, and as laydown areas for materials. No records of spills or derailments are available from either the Nashville office of Seaboard Systems or from the Federal Railroad Administration. Records at those offices are reportedly kept on file for one year and then destroyed.

Three natural gas pipelines pass to the south and east of Brentwood and cross Split Log Road about 4,500 ft southeast of the Kennon Site (Figure 2). One 36-inch (in)-diameter and two 30-in-diameter lines, operated by Columbia Gulf Transmission Company, transport Southern Louisiana and Louisiana offshore natural gas northward for distribution by Columbia Gas Companies. A valve station, for isolating sections of pipeline, is located just south of Split Log Road.

For four years the Williamson County Landfill Division has operated a garbage collection site south of Moore's Lane, between the railroad and Wilson Pike (Figure 2). The site contains two to five dumpsters, where local residents may dispose of garbage. The facility is intended for domestic garbage only; however, it is not manned and there is no way to insure that small amounts of industrial waste or hazardous household and farm wastes are not disposed.

Phosphate Mining

The phosphate mined in Williamson County is of the brown type, which is the most economically important type of phosphate ore in Tennessee. It occurs in the western part of the Central Basin physiographic region and is associated with certain phosphate-rich Ordovician Period limestones. (Smith and Whitlatch, 1940).

The brown phosphate deposits in the Franklin area occur as rim deposits around hillsides, formed as weathering residuum of Ordovician Bigby-Cannon and Hermitage Formation limestones. Low-grade phosphate ore was strip-mined by drag lines or bulldozers in this area. The ore was washed and processed off-site to obtain high-grade elemental phosphorus.

Phosphate mining in Tennessee is regulated by the Department of Conservation. The permitting process, in operation since 1972, includes submission of a reclamation plan and a bond which is released after reclamation is approved, as well as documentation of land ownership and other details such as location, acreage and surface drainage.

Phosphate was mined from the Kennon Property between November 1972 and April 1974, by Monsanto Industrial Chemicals Company. A total of 20 acres were permitted to be mined and an additional two acres were permitted as an access road. According to TDHE records, a total of eight acres were actually disturbed (Figure 3). Low-grade phosphate deposits

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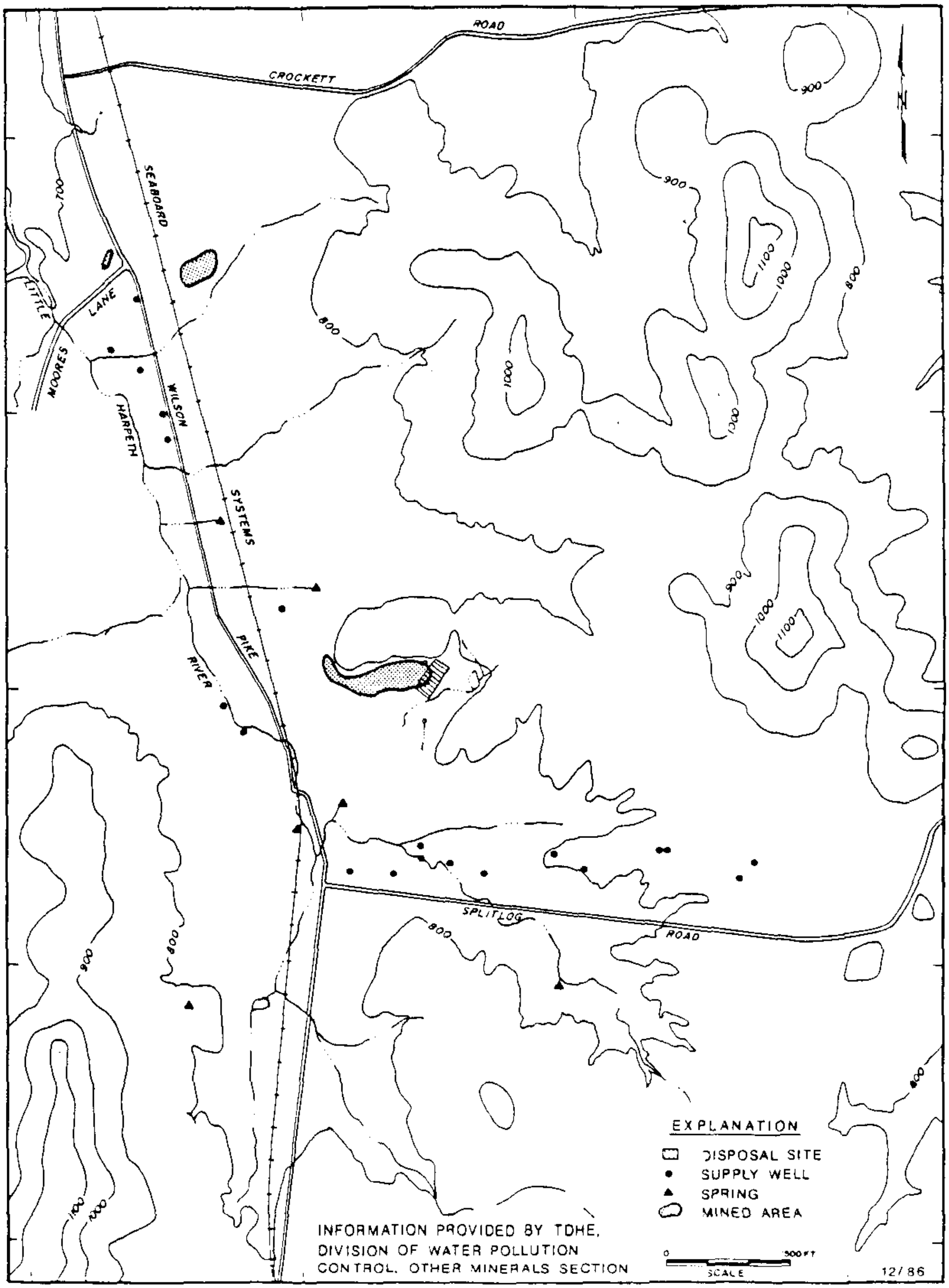

FIGURE 3. AREAS MINED FOR PHOSPHATE BY MONSANTO FROM 1972-1974

as much as 15 ft thick, occurring as weathering residuum of the Bigby-Cannon limestone, were mined from the property. Reclamation consisted of grading and sowing the area in fescue and rye. The bond for mining of the Kennon property was released in April 1974, when reclamation was considered complete; however, a small mine pit was left unfilled and was later used for disposal of industrial wastes.

It is not clear why the mine pit used for waste disposal at the Kennon Site was left unreclaimed. Correspondence between Monsanto and the State of Tennessee suggest that the mining of that pit was followed by an unusually rainy period which inhibited reclamation. Reclamation of the site was approved after a site inspection by TDHE in September 1973.

Waste Disposal at the Kennon Site

For a short period during the late summer and fall of 1978, industrial waste from General Adhesives, a division of Genesco, was disposed of in pits on the Kennon site. Approximately 800 barrels of waste, primarily from the cleaning of kettles used in the production of adhesives and caulking compounds, was disposed of at the Kennon site. Approximately 50 to 80 barrels containing waste were buried in the disposal pits.

Initially wastes were poured into the abandoned phosphate mine pit, (Pit D) shown on Figure 4. When this pit was filled, four additional disposal trenches (Pits A, B, C,

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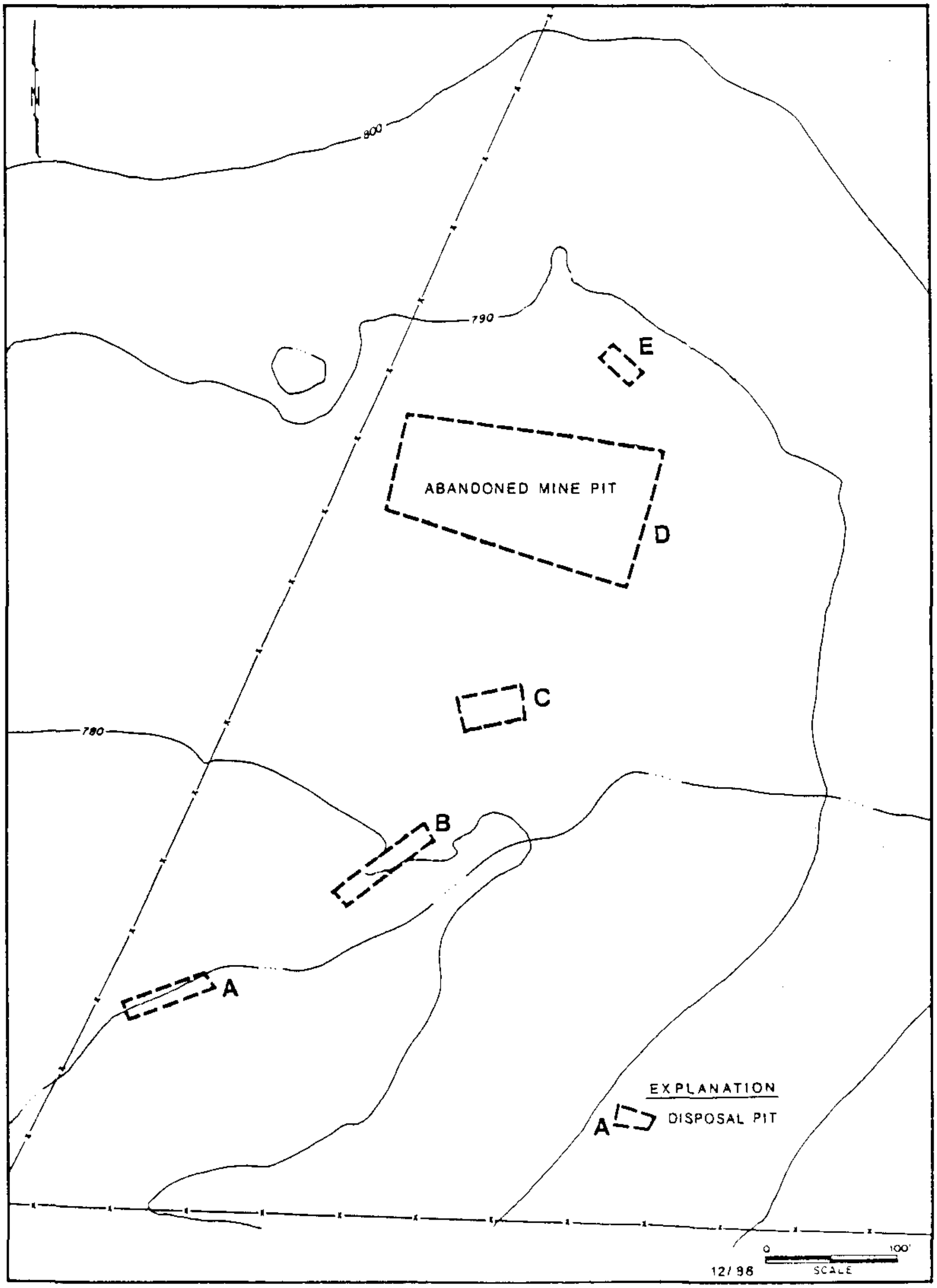

FIGURE 4. DISPOSAL PITS

and E) were excavated to a depth of about 6 ft with a bulldozer at the approximate locations shown in Figure 4. The disposal pits were left open for a short period to allow for evaporation and then were covered with soil and graded.

Previous and Ongoing Work

Initial Fact-Finding by Genesco

During May 1985, the present management of Genesco learned of the 1978 waste disposal at the Kennon site. Genesco promptly notified TDHE and began an investigation to determine the extent of contamination. The areas of the disposal pits shown in Figure 4 were delineated from the recollections of the landowner's bulldozer operator who was responsible for excavation of the trenches. It was determined that the major components of the waste were water-soluble adhesives, acetone, ethyl acetate, hexane, methylene chloride, methyl ethyl ketone, rubber solvent, toluene, 1,1,1 trichloroethane, trichloroethylene, and organic fillers.

Inspection Pit Sampling

During January 1986, 101 inspection pits were excavated with a backhoe in and around the disposal area to verify and more precisely delineate the areas of the disposal pits (Figure 5). Samples of water, soil, and sludge were collected from 36 of the pits by personnel from TDHE and GA. Samples were taken from only those pits where sludge, metal drums or ground-water seepage were found. Samples collected by TDHE were analyzed for full priority pollutants and those collected by GA were analyzed for priority pollutant volatile organic compounds (VOCs). TDHE also sampled water and soil

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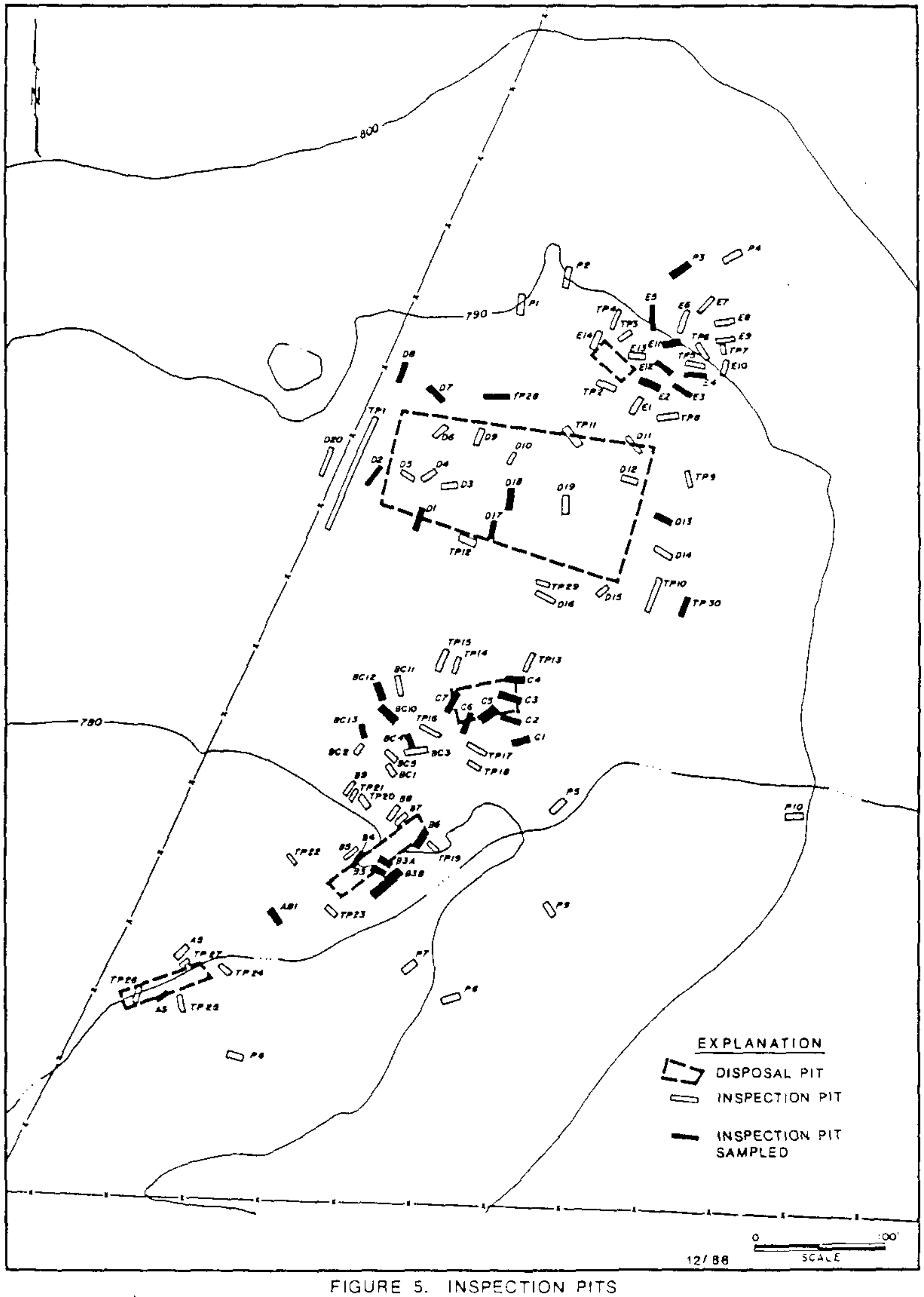

FIGURE 5. INSPECTION PITS

from an on-site seep, the location of which is shown in Figure 6. A total of 31 organic chemical compounds were detected on-site. Results of chemical analyses from this phase of work are presented in Appendix A.

Off-Site Sampling

Off-site domestic wells and springs in the area have been sampled by TDHE and analyzed for priority pollutants, the results of which are included in Appendix B. Traces of organic compounds were detected in seven wells and one spring. In four of the wells only chloroform, bromodichloromethane and dibromochloromethane (Trihalomethanes) were found, and only in trace amounts. Trihalomethanes are commonly present in chlorinated water supplies. Small concentrations of organic compounds other than trihalomethanes were found in three wells (Mallory, Legieza, and Fletcher) and one spring (Hackett). The Fletcher well was found to contain a trace of bis(2-ethylhexyl)phthalate in only one of four samples. This substance is commonly found in association with plastics such as PVC. Substances found were within limitations allowed by the Safe Drinking Water Act. Occurrences of unexplained organics are shown in Figure 7. Samples of surface runoff from the Kennon site were collected by TDHE on March 13, 1986, and from the Little Harpeth River on February 14 and 25, 1986, at locations shown in Figure 8. No hazardous substances were found in these samples. Analytical results of this sampling are included in Appendix C.

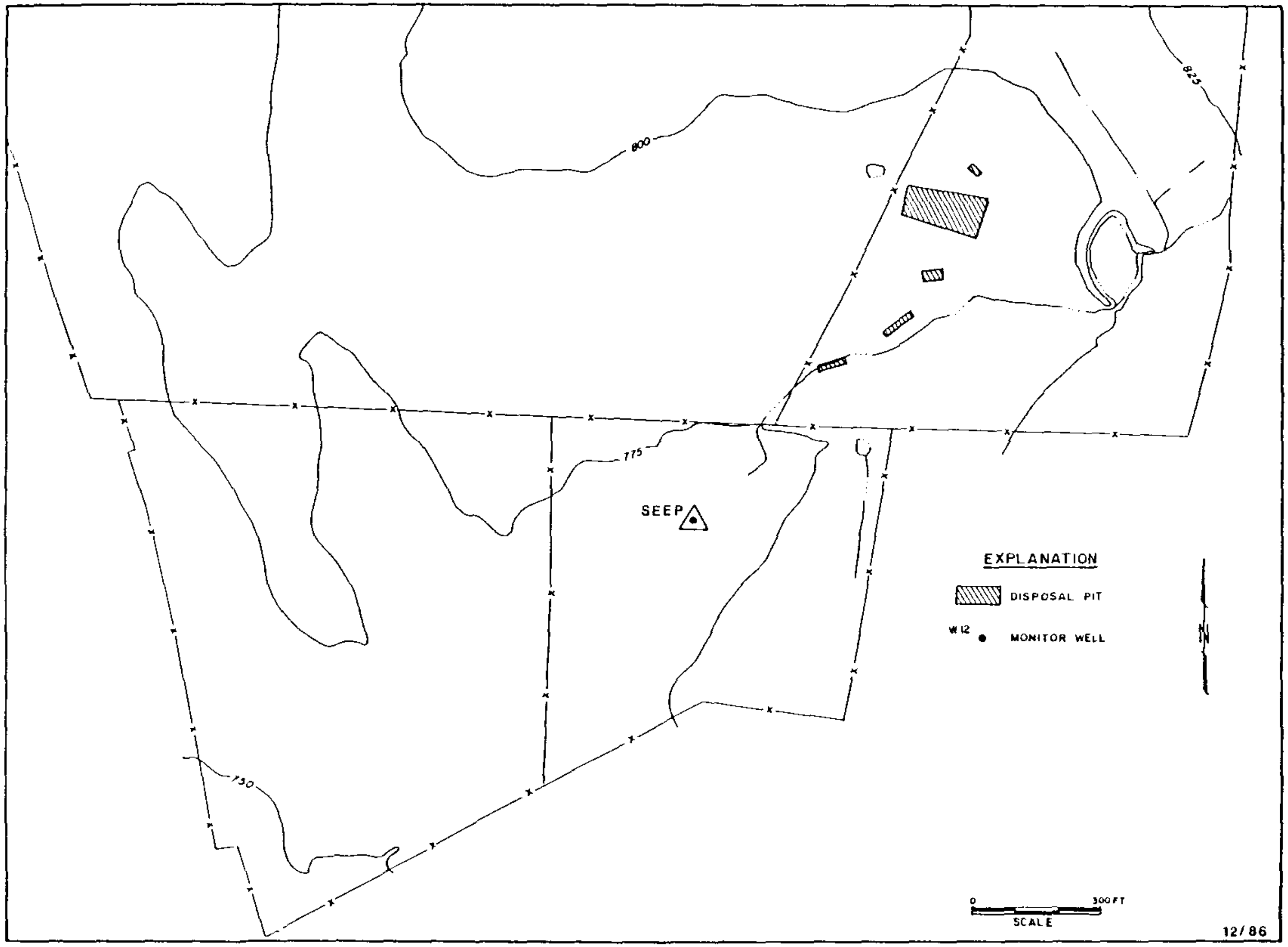

FIGURE 6. ON-SITE SEEP SAMPLED BY TDHE

Geraghty & Miller, Inc.

Geraghty & Miller, Inc.

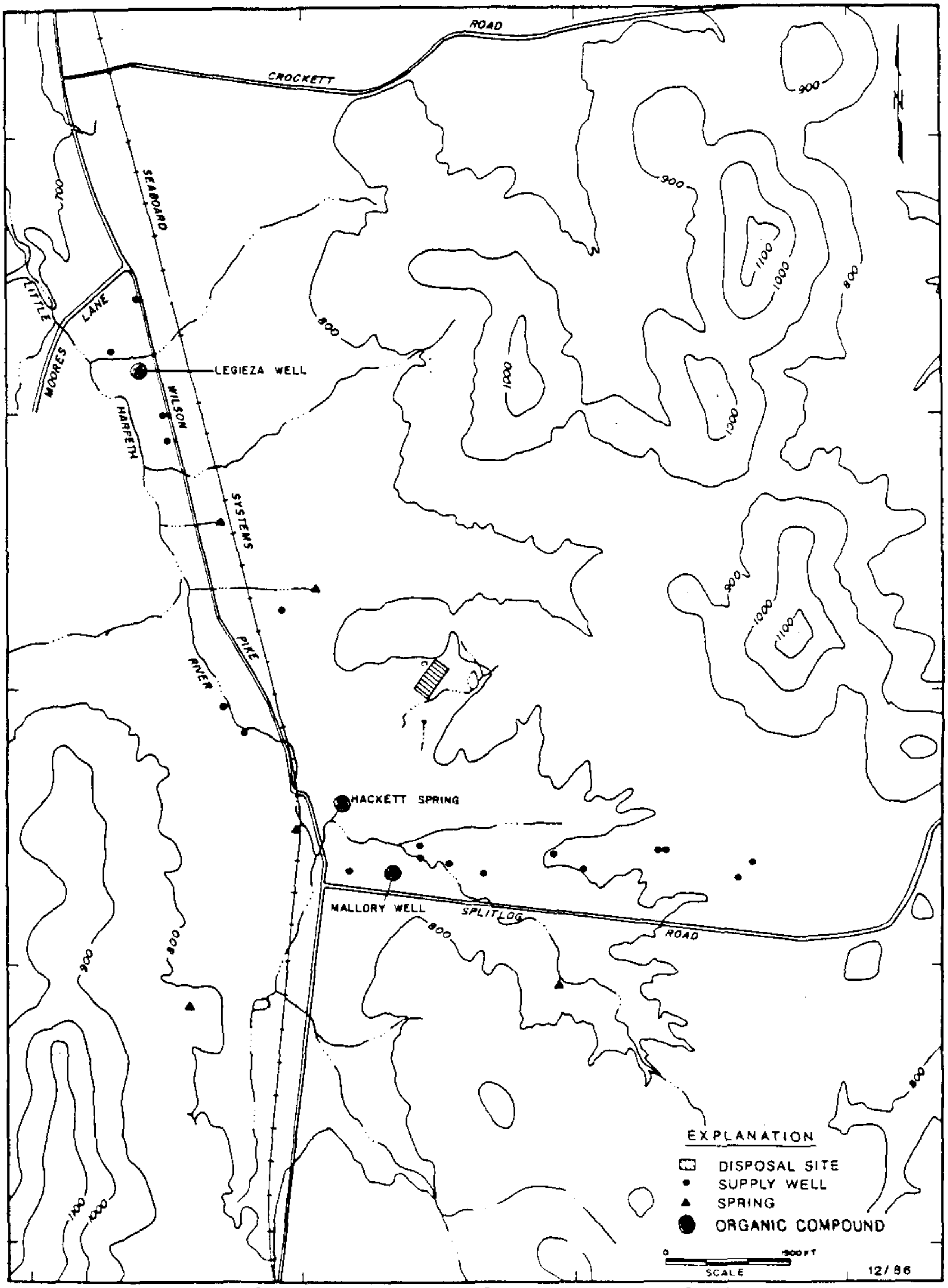

FIGURE 7. OCCURRENCES OF UNEXPLAINED ORGANIC COMPOUNDS

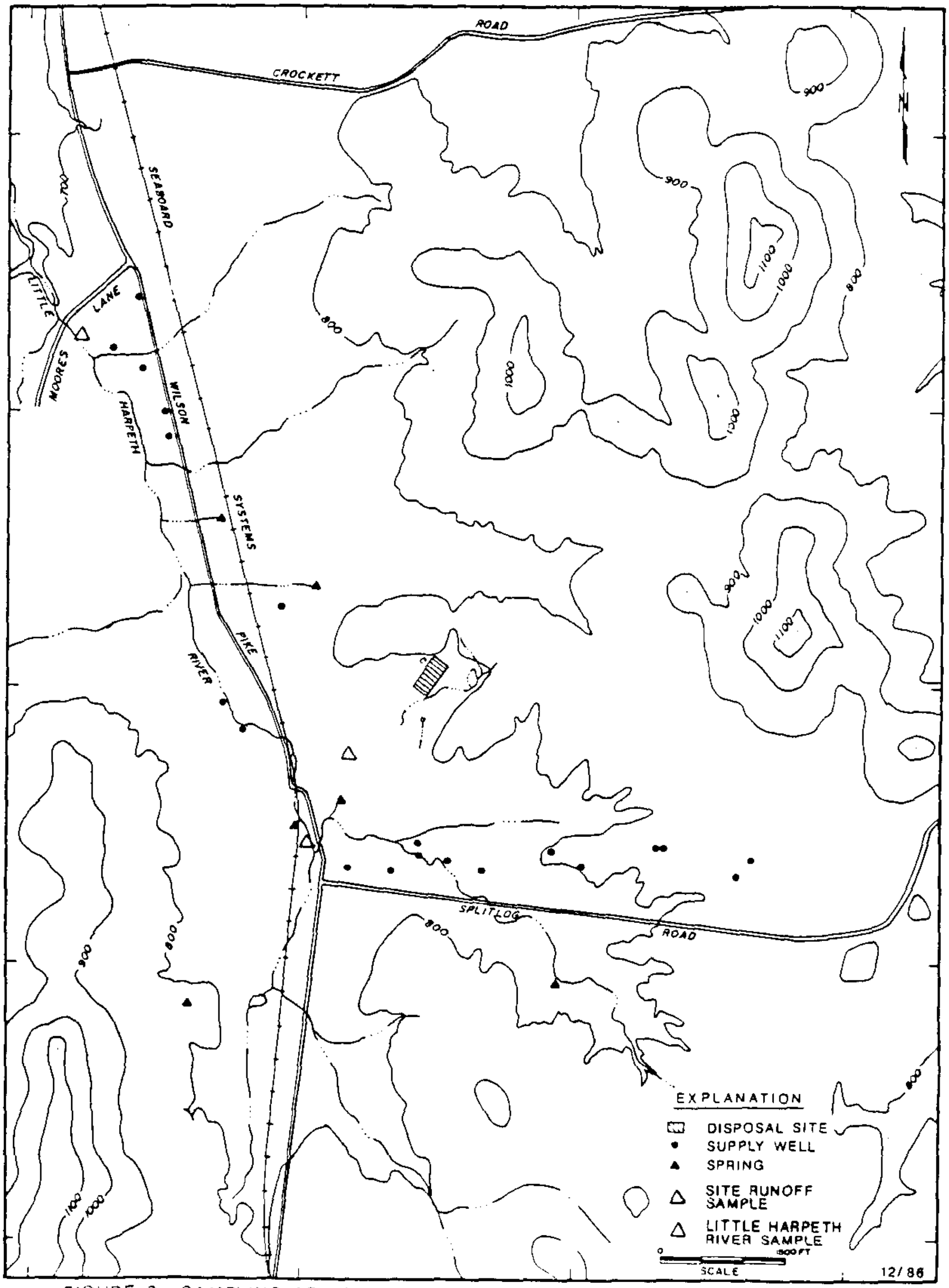

FIGURE 8. SAMPLING POINTS FOR SURFACE RUNOFF AND LITTLE HARPETH RIVER

On-Site Monitor Well Installation and Sampling

Thirty shallow 2-in-diameter PVC monitor wells were constructed on-site by GA between January and March 1986. The first ten wells, designated PZ-1 through PZ-9 and PZ-7A were installed as piezometers to monitor ground-water levels. Wells W-10 through W-29 were installed to monitor groundwater quality in the vicinity of the disposal site. Subsequently the PZ wells have been included in the water quality sampling network. As shown in Figure 9, most of the wells are located in a drainage swale leading from the disposal area.

Construction details are summarized in Table 2 and illustrated in Figure 10. Lithologic logs for these wells are included in Appendix D. The wells designated with "PZ" have essentially the same construction as those designated with "W" except that the holes for the PZ wells were wash-bored to bedrock, whereas those for the W wells were augered and the drilling equipment was cleaned before drilling each W well. The bedrock was cored using an NQ core barrel, which has a nominal outside diameter (O.D.) of three inches. The screen was set in the 3-in hole and a filter pack was added around the screen. A bentonite seal was placed above the filter pack and the remainder of the annulus was filled with cement grout. A 1.7-in O.D. Brainard-Kilman hand pump was used to develop the wells.

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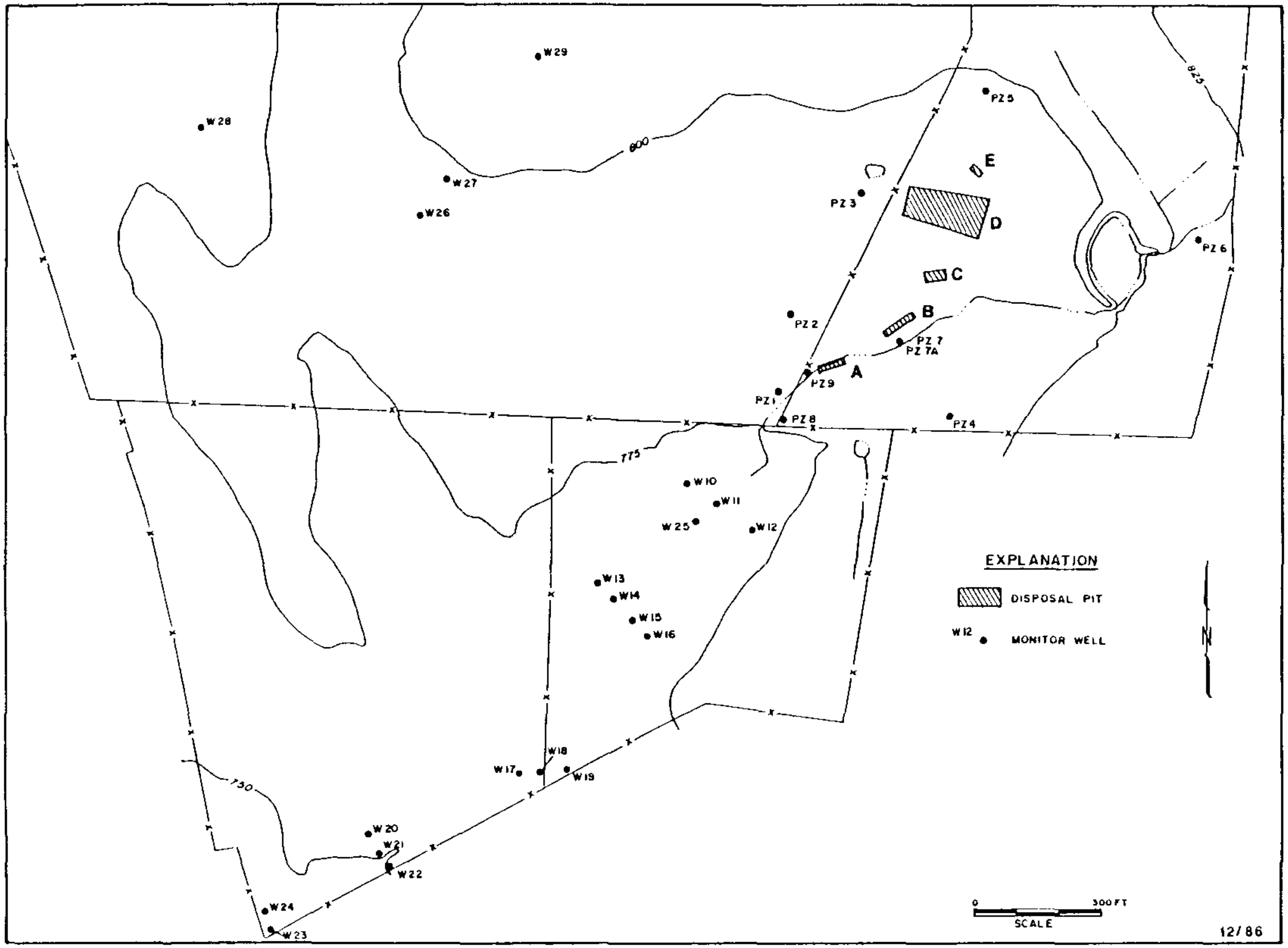

FIGURE 9. MONITOR WELLS AND DISPOSAL PITS

Geraghty & Miller, Inc.

TABLE 2
CONSTRUCTION DETAILS OF ON-SITE MONITOR WELLS

WELL NO.	INSTALLATION DATE	SURFACE ELEV. (ft msl)	MEAS. PT. ELEV. (ft msl)	SCREENED INTERVAL (Depth, ft)	FILTER PACK INTERVAL (Depth, ft)	BENTONITE SEAL INTERVAL (Depth, ft)	GROUT BACKFILL INTERVAL (Depth, ft)	AUGER OR WASH BIT REFUSAL (Depth, ft)
PZ-1	1/15/86	777.1	780.30	20.55 - 30.55	12.0 - 31.3	9.6 - 12.0	0 - 9.6	9.6
PZ-2	1/15/86	778.08	781.20	20.7 - 30.7	6.0 - 30.7	4.5 - 6.0	0 - 4.5	5.4
PZ-3	1/17/86	787.25	790.00	20.7 - 30.5	6.5 - 30.7	5.0 - 6.5	0 - 5.0	5.7
PZ-4	1/17/86	790.40	793.60	20.0 - 30.0	7.0 - 31.2	5.0 - 7.0	0 - 5.0	5.7
PZ-5	1/20/86	797.70	800.60	21.0 - 32.0	6.0 - 32.0	4.0 - 6.0	0 - 4.0	5.0
PZ-6	1/21/86	808.47	810.50	18.5 - 28.5	10.5 - 28.5	8.5 - 10.5	0 - 8.5	9.3
PZ-7	1/23/86	779.08	782.00	5.0 - 8.5	5.0 - 8.3	3.5 - 5.0	0 - 3.5	6.2
PZ-7A	1/24/86	778.77	781.50	11.4 - 21.4	7.5 - 21.4	6.0 - 7.5	0 - 6.0	6.3
PZ-8	1/27/86	777.60	780.70	8.0 - 11.1	8.0 - 11.0	6.0 - 8.0	0 - 6.0	9.9
PZ-9	1/28/86	777.0	779.40	7.5 - 10.4	7.0 - 10.4	5.5 - 7.0	0 - 5.5	7.4
W-10	3/04/86	769.8	772.10	5.4 - 13.2	3.7 - 13.2	1.7 - 3.7	0 - 1.75	7.8
W-11	3/04/86	768.83	771.20	1.8 - 7.2	1.8 - 7.2	0 - 1.8		4.9
W-12	3/04/86	771.19	773.50	4.1 - 9.5	3.1 - 9.5	1.0 - 3.1	0 - 1.0	7.2
W-13	3/04/86	764.07	776.50	1.4 - 7.0	1.3 - 7.0	0 - 1.3		4.6
W-14	3/04/86	767.29	769.70	2.6 - 5.5	2.6 - 5.5	0 - 2.6		3.5
W-15	3/14/86	765.16	767.60	3.6 - 6.5	2.6 - 6.5	0 - 2.6		4.5
W-16	3/04/86	767.5	769.90	6.1 - 11.5	5.1 - 11.5	2.6 - 5.1	0 - 2.6	1.2
W-17	3/14/86	758.3	760.60	2.0 - 7.5	2.1 - 8.0	0 - 2.1		5.7
W-18	3/14/86	759.0	761.40	4.7 - 9.2	3.4 - 9.2	1.2 - 3.4	0 - 1.2	7.0
W-19	3/14/86	759.9	761.30	5.6 - 11.0	4.6 - 11.0	2.6 - 4.6	0 - 2.6	8.9
W-20	3/14/86	751.2	753.60	3.7 - 6.5	2.7 - 6.5	0 - 2.7		4.4
W-21	2/28/86	750.31	752.70	6.0 - 11.5	5.2 - 11.5	3.2 - 5.2	0 - 3.2	8.5
W-22	2/28/86	750.0	752.40	2.2 - 7.8	2.0 - 7.8	0 - 2.0		5.4
W-23	2/28/86	744.63	747.00	6.5 - 14.5	4.5 - 14.5	2.5 - 4.5	0 - 2.5	11.2
W-24	3/03/86	745.0	748.00	8.5 - 13.8	7.0 - 13.8	4.5 - 7.0	0 - 4.5	11.3
W-25	3/14/86	765.10	767.50	1.5 - 6.9	3.0 - 6.9	0 - 3.0		6.9
W-26	3/03/86	792.10	794.50	8.0 - 21.2	6.5 - 21.2	3.0 - 6.5	0 - 3.0	10.9
W-27	3/03/86	794.79	797.30	1.0 - 11.6	1.6 - 11.6	0 - 1.6		7.0
W-28	3/03/86	764.99	767.40	3.0 - 11.0	2.5 - 11.0	0 - 2.5		5.8
W-29	3/04/86	822.0	824.40	16.7 - 44.5	10.2 - 44.5	8.2 - 10.2	0 - 8.2	8.3

NOTES
1. All wells installed by GA.
2. Elevations determined by GA.
3. Measuring points are top of PVC casing.
4. Total depth of each well is the bottom of the filter pack.
5. All casing is 2-inch-diameter PVC, flush threaded.
6. All screen is 2-inch-diameter PVC, slotted (0.01 in slot).
7. Wells PZ-1 through PZ-9 wash-bored to bedrock (6-inch-diameter borehole).
8. Wells W-10 through W-29 augered to bedrock (6-inch-diameter borehole).
9. All wells except W-25 cored from top of bedrock to total depth (3-inch-diameter corehole).

water flow system, to determine directions and rates of ground-water flow, and to determine ground-water discharge points. The USGS plans to install monitor well clusters on the Kennon property and in the surrounding area. Each cluster will consist of a shallow well open to the Bigby Cannon or Upper Hermitage Formations and a deep well open to the Carters and Lower Hermitage Formations.

Remedial Actions

Measures have been taken to minimize potential threats to human health and the environment. A continuous silt screen was constructed during January 1986 along the fence directly down slope from the source area (Figure 12). This is designed to prevent the transport of contaminated sediment off-site onto adjoining property and eventually into the Little Harpeth River. Samples of surface runoff from the Kennon site and from the Little Harpeth River collected by TDHE show none of the contaminants detected in the source area.

When it was learned that water for residences around the site was supplied by individual wells, Genesco began providing bottled water to the residents in the area. In addition, carbon adsorption filtration units were installed in the water supply systems of the Hackett and Legieza households to remove organics that might be present in the water.

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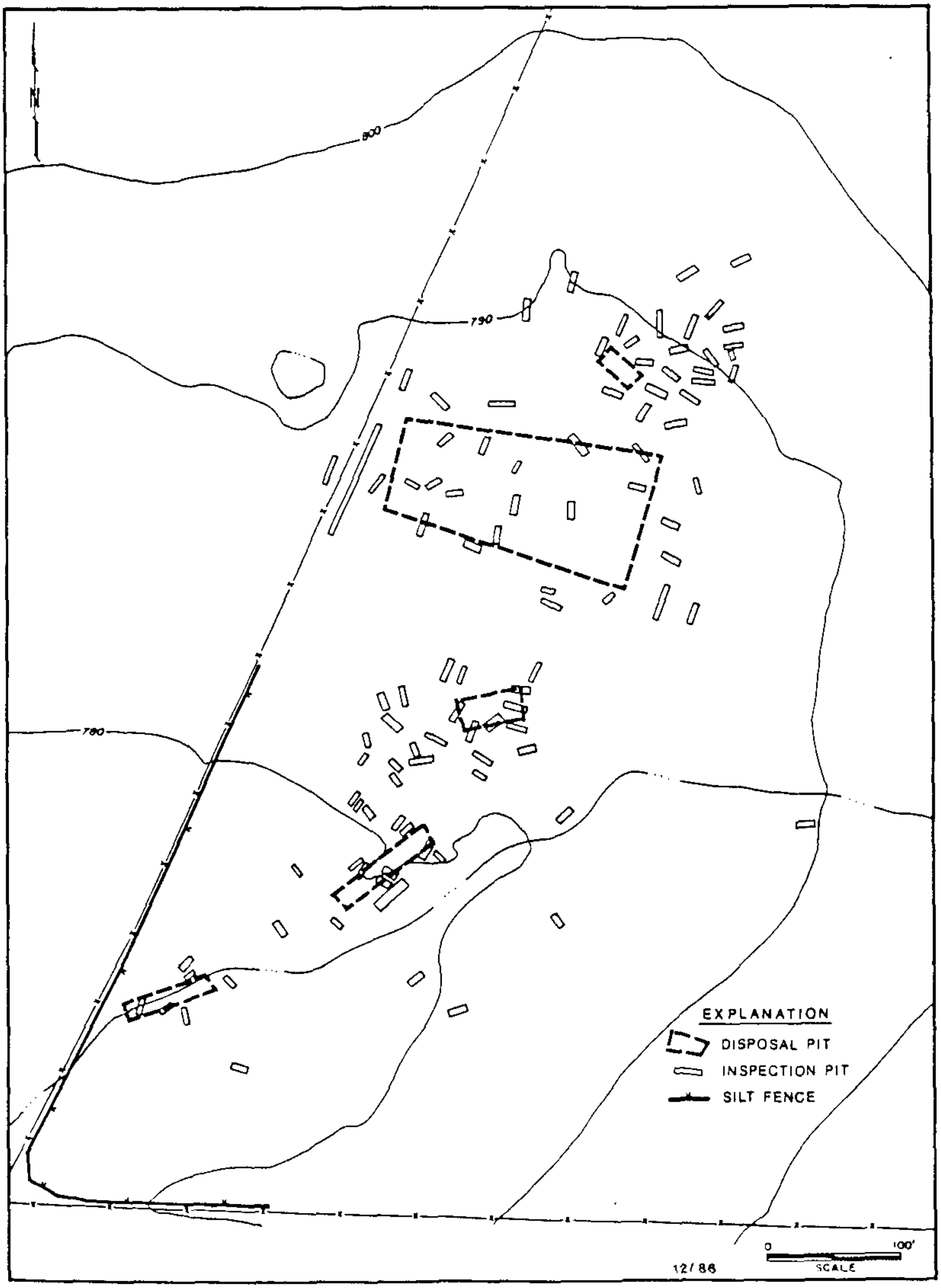


FIGURE 12. SILT FENCE

Genesco and the City of Brentwood are cooperating to extend a water main along Wilson Pike and Split Log Road in order to supply Brentwood City water to 28 residences and three unoccupied properties in the area (Figure 13). This project is expected to be completed in the fall of 1986.

Geraghty & Miller, Inc.

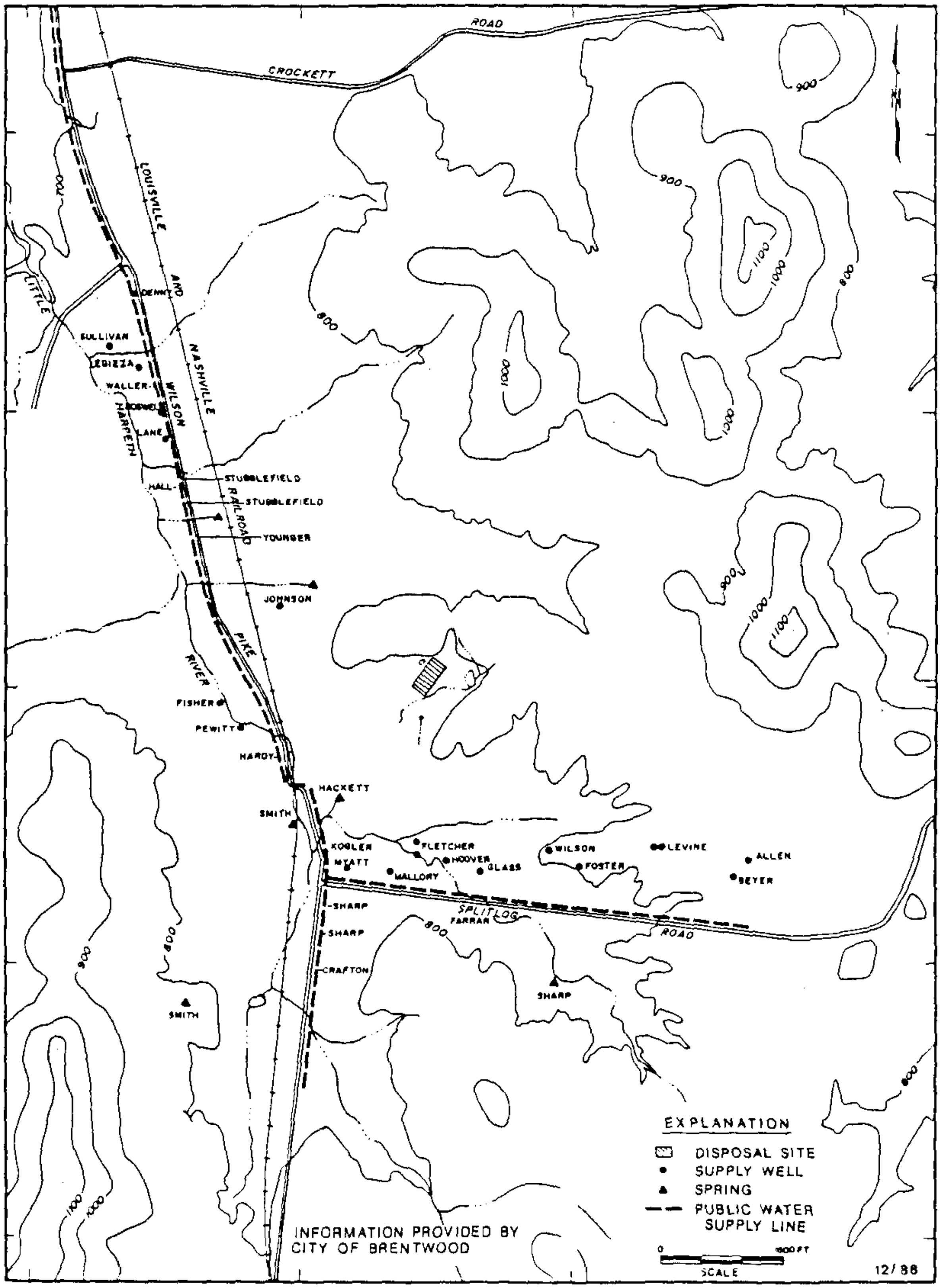


FIGURE 13. CITY OF BRENTWOOD WATER MAIN

drains similar terrain near Franklin, may be applicable to the Little Harpeth River Basin as well. Ground-water discharge provides the base flow of streams, and the USGS study of the Franklin area (Zurawski and Burchett, 1980) indicates an average base flow of 8 inches or 18 percent of the year's rainfall. The actual proportion of annual rainfall that recharges the ground-water system in the study area may vary somewhat from this.

Geology

The Kennon property is underlain by a sequence of relatively flat-lying rocks, principally limestones with interbedded layers of shale and shaley or sandy limestone that is phosphatic in places (Figure 14). A generalized stratigraphic column is presented in Figure 15.

The site lies on the Nashville Dome, along the axis of the Cincinnati Arch, a broad northeast-trending structural high, where erosion along the breached crest has exposed older, underlying rock in an extensive lowland called the Central Basin. The Central Basin is bounded on all sides by escarpments of the younger overlying rocks. The rolling topography within the Central Basin results from weathering of the limestones and erosion of the residual clay and sand into valleys and hills or knobs.

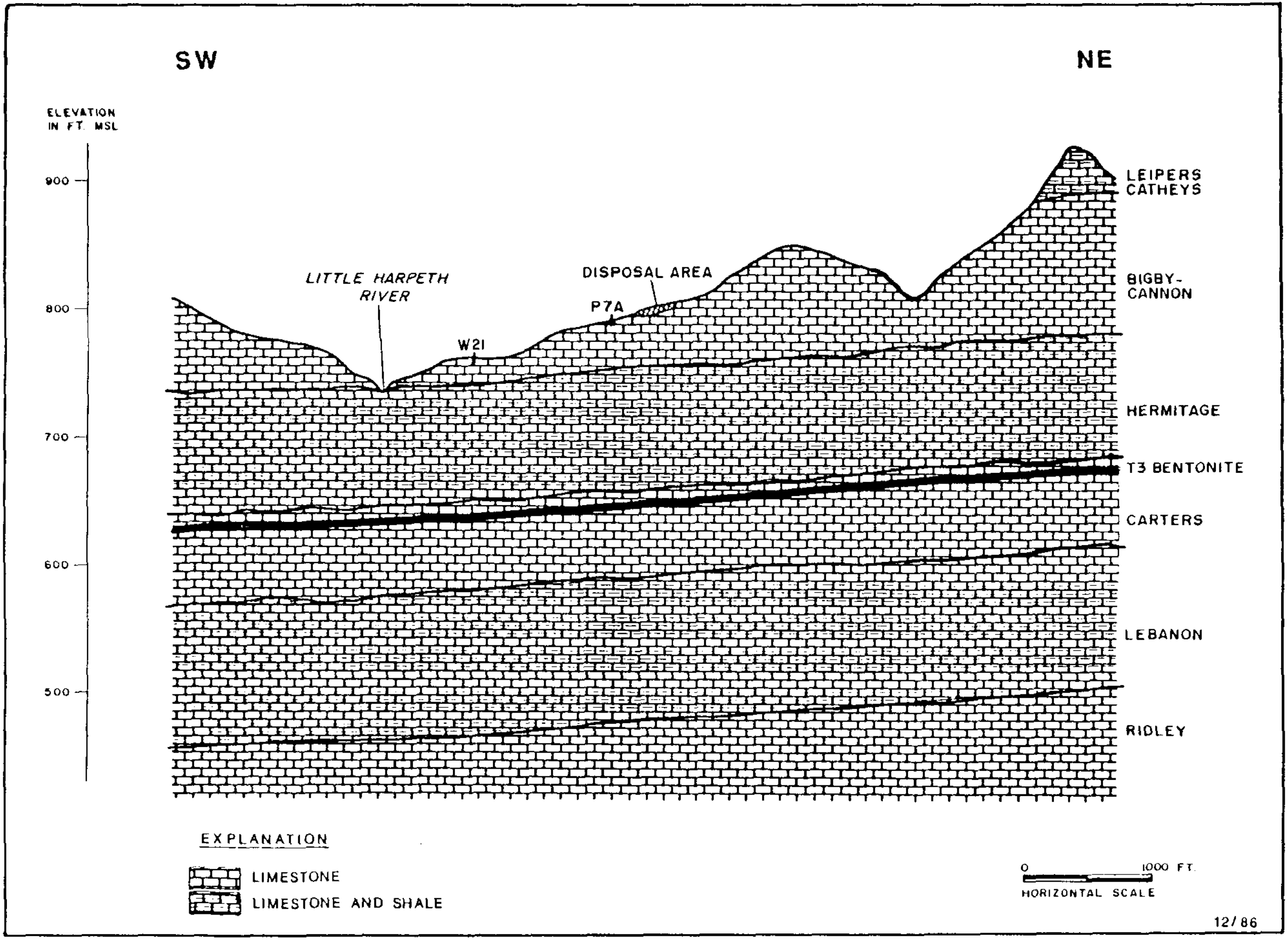


FIGURE 14. GEOLOGIC SECTION THROUGH THE KENNON SITE

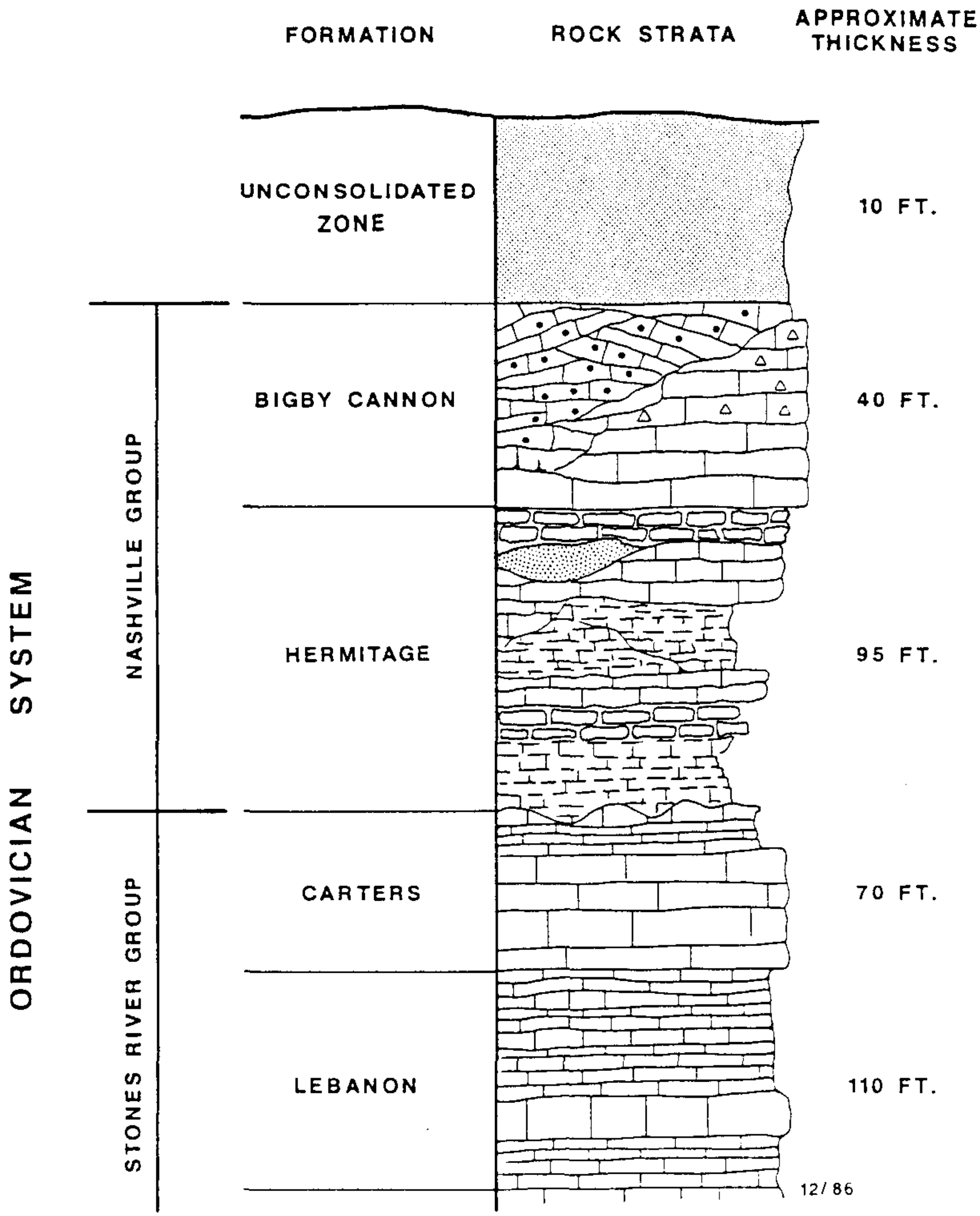


FIGURE 15. GENERALIZED STRATIGRAPHIC COLUMN AT THE KENNON SITE

Surficial Material

Unconsolidated weathering residuum overlying bedrock averages 7-ft thick at the site, and ranges from 3 to 12 ft in the 30 monitor wells drilled by GA. Moderately deep sandy, silty, clayey residuum, which is fairly permeable, typically overlies the Hermitage formation, usually in the lower elevations and along Little Harpeth River. In the upland areas, more commonly underlain by Bigby-Cannon limestones, a relatively thin, clayey residuum develops. Permeability is diminished by the clay content and proportionately less water is able to infiltrate the clayey soils. Steeper slopes, common to areas of clayey soils, are naturally more conducive to surface runoff than infiltration.

Bigby-Cannon Formation

Cores recovered from test drilling of the monitor wells into the Bigby-Cannon Formation show a relatively thin-bedded calcarenite, composed of sand-size grains of carbonate rock cemented to form a consolidated limestone. Cross-bedding of the particles is evident, and color varies from light to dark gray through a vertical distance of a few inches or less, due principally to varying content of clay. This appears to be the basal member of the Bigby limestone. Thickness of this unit ranges from 1.9 to 13.5 ft and averages 8 ft in the 7 test holes that penetrated to the Hermitage Formation.

The texture of the rock is relatively open, suggesting moderate primary permeability. Solution features are common throughout the core samples, particularly in the lighter-colored, less clayey sections and along bedding planes. Secondary permeability through these solution conduits would appear to be very good, particularly horizontal permeability. Cross beds are not extensive, so vertical permeability may be greater than suggested by observation of any one core. Vertical fractures, not seen in the cores, may be present and would also increase the vertical permeability.

Hermitage Formation

The Hermitage Formation underlies the Bigby limestone beneath much of the site, particularly the uplands. In the southern edge of the Kennon property, and along the bed and floodplain of Little Harpeth River, the Bigby has been eroded away and the Hermitage is the uppermost rock unit. The Hermitage, in this area, may be as much as 50 ft thick. The upper Hermitage is a coquina facies, a poorly consolidated deposit of shells that is quite permeable. This facies apparently does not occur at the Kennon site because the ten test holes that penetrated the Hermitage Formation revealed alternate shale and limestone typical of the middle Hermitage "laminated argillaceous limestone facies". This facies, which is reportedly 40 to 75 ft thick is described as silty to sandy limestone with thin shale partings. Core recovered at the site show the Hermitage to be about 50 percent shale, with some shale beds exceeding 1 ft in thickness. This accords with drillers' descriptions of the Hermitage as a confining formation. The basal 5 ft of the Hermitage, the Curdsville limestone member, is a thin-bedded limestone with thin shale partings.

The top of the Hermitage Formation may be an important control of ground-water flow because of the low permeability of the Hermitage shales. Additional data collected during the proposed drilling program will be sufficient to delineate this surface. Although the Hermitage is tentatively considered a confining unit that may well limit the contaminants to the uppermost aquifer, it will be necessary to verify that this is indeed the case.

Carters Limestone

The upper 5 to 10 ft of Carters is thin-bedded, fine-grained to cryptocrystalline limestone with thin shale partings. Immediately below is a dense sticky bentonite clay, the T-3 bed, which is 6 to 12 inches thick. Beneath the T-3 bed, the lower member of the Carters is a very fine-grained to cryptocrystalline thick-bedded limestone with minor mottlings of dolomite and thin bands and lenses of chert locally. Thickness of the lower unit is about 70 ft. The lower unit includes two additional bentonite layers, the T-1 and T-2 beds, that are apparently less distinct than T-3.

The Carters limestone was exposed to erosion prior to deposition of the Hermitage formation and is reported to be riddled with solution features that provide conduits for ground-water flow. The Carters has yielded 400 gallons per minute (gpm) to wells near Franklin, apparently from solution conduits in the lower unit. (Zurawski and Burchett, 1980). The Carters crops out about 2 miles south of the site in the valley of Mayes Creek and is extensively exposed from there southward.

Lebanon Limestone

The Lebanon limestone is a cryptocrystalline to, occasionally, coarse grained, thin bedded limestone with thin shale partings. The Lebanon is reported to be about 100 ft thick in the study area. The shale beds apparently comprise a confining layer and the Lebanon is considered here to be the base of local ground-water flow.

Structure

Although the rock units in the area are generally flat-lying, local flexures are not uncommon. The valley of the Little Harpeth may be simply erosional; it may have developed along a downward flexure in the underlying rocks; or it may have developed in an area of subsidence or collapse into solution features in the underlying limestone. Examples of all three cases exist within the area.

If the valley is simply erosional, shallow ground water is, most likely, discharging to the banks and bottom of Little Harpeth River from either side. This would be even more likely if a structural downwarp had initiated erosion of the valley.

Subsidence of the Hermitage into solution cavities in the underlying Carters limestone would likely have resulted in breaching of the confining shale layers and development of vertical flow paths through the Hermitage Formation. Topography of the Little Harpeth Valley suggests that this was probably not the case. There are no closed depressions or steep scarps indicative of collapse.

Joints

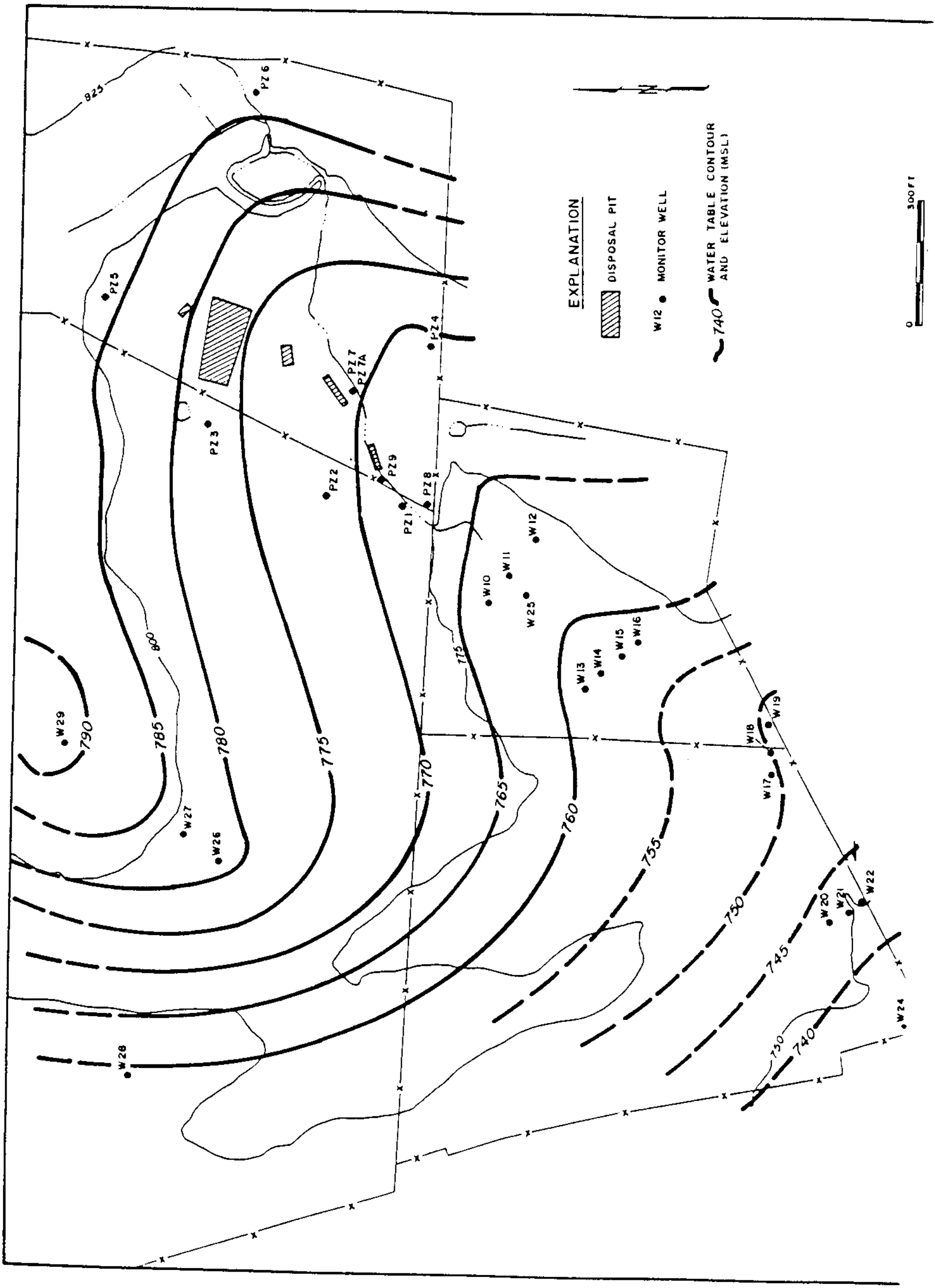
Joints are vertical or near-vertical fractures that, in limestone, are commonly enlarged by dissolution of the carbonate rock by downward-percolating water. The enlarged joints become increasingly active conduits for horizontal ground-water flow as well as vertical flow between aquifers. Regional studies in the Nashville area have demonstrated a prominent joint set oriented northwest and another set oriented northeast (Barr, 1961).

A study of air photos of the site reveals linear depressions that may be due to solution enlarged joints in the underlying bedrock. One lineation is the axis of the northeast trending swale in which the disposal pits are located. Another trends northwest, approximately in line with monitor wells W-28 and W-19. The relatively high yields of water from wells W-25 and W-19 may be explained by underlying joints at these locations.

Ground-Water Flow

Ground water moving beneath the Kennon site is recharged from precipitation on the site. Contours of the water table (Figure 16) show that ground-water flow in the uppermost aquifer, the surficial material and Bigby-Cannon limestones, generally follows the topography of the land surface and, most likely, discharges to Little Harpeth River and to springs and seeps in topographically low areas.

The Hermitage Formation is assumed to be a confining bed that isolates shallow ground water at the site from the deeper aquifers, although some vertical leakage may take place. Solutionally-enlarged joints in the Hermitage may provide conduits for vertical movement of water between the Bigby limestone and the Carters. Proposed deep wells are designed to verify whether this is the case, as well as to determine the presence of contaminants, if any, and the rate and direction of flow in the deeper aquifers.


EXPLANATION
DISPOSAL PIT
W12 ● MONITOR WELL
740 WATER TABLE CONTOUR AND ELEVATION (MSL)
0
300 FT
N
825
800
775
790
785
780
775
770
765
760
755
750
745
740
750
PZ1
PZ2
PZ3
PZ4
PZ5
PZ6
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W28
W29

KENNON SITE

Site No. TND 981473575

Reference No. 3

The

Condensed Chemical Dictionary

TENTH EDITION (1981)

Revised by

GESSNER G. HAWLEY

VNR VAN NOSTRAND REINHOLD COMPANY
NEW YORK CINCINNATI TORONTO LONDON MELBOURNE

...ears.
...o skin and eyes; causes blis-
...ard.

...xists only at low tempera-
...f.p. −114°C; b.p. −20°C;
...tion at normal pressure to
...hexachlorobenzene.
...carbon tetrachloride vapor
...and 10^{-3} mm Hg.
...on with carbon; forms phos-
...oxygen.

...ocene (ferrocenoyl dichlo-

...ine solid; m.p. 93–95°C.

...phenyl)-1,3,5,-triazin-2-
...N_3Cl_2.
...line solid; m.p. 159–160°C;

...xic. See aniline.

...rsine. See chlorovinyldi-

...odiphenylmethane. See
...oroaniline).

...benzoquinone (DDQ)
...N):C(CN).

...w-orange solid; m.p. 213–

...oxidizing agent for organic

...r. See dichloroethyl ether.
See dichloroethyl formal.
(mustard gas; dichloroethyl
...
...d; b.p. 228°C; f.p. 14°C; sp.
...20°F (104°C).
...thylene through sulfur chlo-
...ycol and hydrogen chloride.
...containing excess sulfur as a

Vesicant war gas; causes
...ndness! Can be decontami-
...or bleaching powder. Vapor
...and can be absorbed through

...; poison gas; medicine.
...Rail) Poison gas label. Not
...(Air) Not acceptable.
...$(ClCH_2CH_2)_2SO_2$.
...stal ...p. 179–181°C(14–15
...alcohol, chloroform,
...in water.
...irritant to eyes and skin.

2,2-dichloro-1,1-difluoroethyl methyl ether (methoxyflurane) $HCCl_2CF_2OCH_3$.
Properties: Clear, colorless liquid; fruity odor; b.p. 104.65°C; f.p. −35°C; sp. gr. 1.4223 (25°C); completely stable in the presence of alkali, air, light, or moisture. Slightly soluble in water. Combustible.
Grade: N.D.
Use: Anesthetic.

dichlorodifluoromethane (difluorodichloromethane; fluorocarbon-12). CCl_2F_2.
Properties: Colorless, odorless, noncorrosive gas. B.p. −29.8°C; f.p. −158°C; critical pressure 43.2 atm. Insoluble in water; soluble in most organic solvents. Nonflammable.
Derivation: (a) Reaction of carbon tetrachloride and anhydrous hydrogen fluoride, in the presence of an antimony halide catalyst; (b) high temperature chlorination of vinylidene fluoride (vinylidene fluorides made by addition of hydrogen fluoride to acetylene).
Grade: 99.9% min. purity.
Containers: Cylinders.
Hazard: Narcotic in high concentrations. Tolerance, 1000 ppm in air.
Uses: Refrigerant and air conditioner; plastics; blowing agent; low-temperature solvent; leak-detecting agent; freezing of foods by direct contact; chilling cocktail glasses.
Shipping regulations: (Rail, Air) Nonflammable Gas label.
See also chlorofluorocarbon.

1,3-dichloro-5,5-dimethylhydantoin (DDH) $ClNCONClOC(CH_3)_2$.
Properties: White powder with mild chlorine odor. M.p. approximately 130°C; sublimes about 100°C without decomposition. Contains approximately 36% active chlorine. Slightly soluble in water with gradual liberation of hypochlorous acid; soluble in benzene, chloroform, ethylene dichloride, alcohol. Combustible, with evolution of chlorine at 210°C.
Derivation: Chlorination of dimethylhydantoin.
Grades: Technical.
Hazard: Toxic by inhalation. Tolerance, 0.2 mg per cubic meter of air. Skin irritant.
Uses: Household laundry bleach; water treatment; mild chlorinating agent; pharmaceutical intermediate; catalyst.

dichlorodimethylsilane. See dimethyldichlorosilane.

dichlorodiphenyldichloroethane. See TDE.

dichlorodiphenyldichloroethylene. See DDE.

dichlorodiphenyltrichloroethane. See DDT.

1,1-dichloroethane. See ethylidene chloride.

1,2-dichloroethane. See ethylene dichloride.

dichloroether. See dichloroethyl ether.

dichloroethoxymethane. See dichloroethylformal.

1,2-dichloroethyl acetate $CH_3COOCHClCH_2Cl$.
Properties: Water-white liquid. Sp. gr. 1.296 (20°C); boiling range: 58–65°C (13 mm); f.p. < −32°C; refractive index 1.444 (20°C); b.p., dec. Flash point 307°F (152°C). Combustible. Miscible with alcohol and ethyl ether. Immiscible with water.
Hazard: Toxic by inhalation.
Use: Organic synthesis.

para-di(2-chloroethyl)aminophenylalamine. See melphalan.

dichloroethylarsine. See ethyldichloroarsine.

dichloroethyl carbonate $(ClH_2CCH_2O)_2CO$.
Properties: Colorless liquid. Slowly hydrolyzed by alkalies. Volatile in steam. Sp. gr. 1.3506 (20°C); b.p. 240°C (partial decomposition). Insoluble in water.
Derivation: By heating ethylene chlorohydrin and trichloromethylchloroformate together (under reflux).

sym-dichloroethylene (1,2-dichloroethylene; acetylene dichloride). $ClHC{:}CHCl$. Exists as cis and trans isomers.
Properties: Colorless, low-boiling liquid. Pleasant odor. It decomposes slowly on exposure to air, light and moisture. Soluble in most organic solvents; slightly soluble in water. Trans-isomer: sp. gr. 1.257; b.p. 47–49°C. Cis-isomer: sp. gr. 1.282; b.p. 58–60°C. Flash point 39°F (3.9°C); f.p. −80°C.
Derivation: Two stereoisomeric compounds made by the partial chlorination of acetylene.
Grades: Technical; as cis, trans, and mixture of both.
Containers: 300-, 550-lb drums.
Hazard: Moderately toxic by ingestion, inhalation and skin contact; irritant and narcotic in high concentrations. Tolerance, 200 ppm in air. Flammable, dangerous fire hazard.
Uses: General solvent for organic materials; dye extraction; perfumes; lacquers; thermoplastics; organic synthesis.
Shipping regulations: (Rail, Air) Flammable Liquid label.

sym-dichloroethyl ether (dichloroether; dichloroethyl oxide; 2,2'-dichlorodiethyl ether, bis(2-chloroethyl) ether) $ClCH_2CH_2OCH_2CH_2Cl$.
Properties: Colorless liquid. Odor like that of ethylene dichloride. B.p. 178.5°C; sp. gr. 1.2220 (20/20°C); wt/gal 10.2 lb (20°C); refractive index 1.457 (20°C); flash point (closed cup) 131°F (55°C); f.p. −51.8°C. Autoignition temp. 696°F (368°C). Miscible with most organic solvents; insoluble in water. Combustible.
Derivation: Chlorination of ethyl ether.
Grades: Technical.
Containers: Glass bottles; iron drums; tank cars.
Hazard: Toxic by inhalation and ingestion; absorbed by skin; strong irritant. Tolerance, 5 ppm in air. Moderate fire hazard.
Uses: General solvent; selective solvent for production of high-grade lubricating oils; textile scouring

KENNON SITE

Site No. TND 981473575

Reference No. 4 SAX

KENNON SITE

Site No. TND 981473575

Reference No. 5

Olcy

Leipers and Catheys Formations

Limestone, argillaceous, nodular and shaly, medium dark-gray to brownish-gray, fine-grained, thin-bedded, fossiliferous; limestone, dark-gray (weathers to pale yellowish-brown), fine-grained, thin- to medium-bedded; calcarenite, medium light-gray to brownish-gray, coarse-grained, medium-bedded, crossbedded, phosphatic, weathers to brown phosphatic residuum; and thin zones of limestone, clayey, medium-gray (weathers to light-gray surface), cryptocrystalline, medium-bedded, breaks with conchoidal fracture, present only in the north. At base of formation is shaly limestone or calcareous shale, olive-gray to yellowish-brown, fine-grained, which typically contains large numbers of bryozoans (*Constellaria* zone). Thickness 120 to 200 feet.

Obc

Bigby-Cannon Limestone

The Bigby-Cannon Limestone in the Franklin quadrangle consists of three facies—the Cannon limestone, Dove-colored limestone, and Bigby limestone—which replace each other laterally and vertically. The Bigby comprises the upper and lower parts of the formation, whereas the middle part includes all three facies. The formation ranges in thickness from 70 to 130 feet.

Cannon limestone facies is medium dark-gray to brownish-black, microcrystalline to medium-grained, thin- to medium-bedded, evenly bedded. Composite thickness 10 to 40 feet.

Dove-colored limestone facies is medium light-gray to medium-gray (weathers to a characteristic light-gray surface), cryptocrystalline, medium and evenly bedded, brittle, breaks with pronounced conchoidal fracture, contains specks and stringers of clear calcite. Composite thickness 5 to 30 feet.

Bigby limestone facies is calcarenite, medium light-gray to brownish-gray, coarse-grained, medium-bedded, crossbedded, contains brown phosphate pellets, weathers to brown phosphatic residuum. Composite thickness 60 to 100 feet.

On

Hermitage Formation

Coquina facies at top is limestone with disseminated silt and shale partings, medium-gray to brownish-gray, medium-bedded, characterized by numerous shells of the brachiopod *Resserella fertilis* (formerly *Dalmanella fertilis*). Thickness 10 to 20 feet.

Laminated argillaceous limestone facies is silty to sandy, medium-gray to dark-gray (weathers to pale to dark yellowish-brown), very fine- to medium-grained, laminated to thin-bedded with thin shale partings. Thickness about 40 to 75 feet.

Curdsville Limestone Member at base is medium- to dark-gray, fine- to medium-grained, thin-bedded with thin shale partings, fossiliferous. Thickness 0 to 5 feet.

Thickness of formation 50 to 100 feet.

Oc

Carters Limestone

Upper member is limestone, medium light-gray to brownish-gray and yellowish-brown, very fine-grained to cryptocrystalline, thin-bedded with thin shale partings. Thickness 5 to 10 feet.

Bentonite (T-3 bed), green when fresh but weathers to white and greenish-yellow sticky clay, 6 to 12 inches thick; occurs between upper and lower members, but rarely seen in natural outcrops. (This is the "Pencil Cave" of drillers' terminology in Central Tennessee.)

Lower member is limestone, medium light-gray to brownish-gray and yellowish-brown, cryptocrystalline to very fine-grained with some beds ranging up to coarse-grained, medium- to thick-bedded, with minor amounts of saccharoidal magnesian limestone as small irregular mottlings, and thin bands and lenses of chert locally. Thickness about 60 to 70 feet.

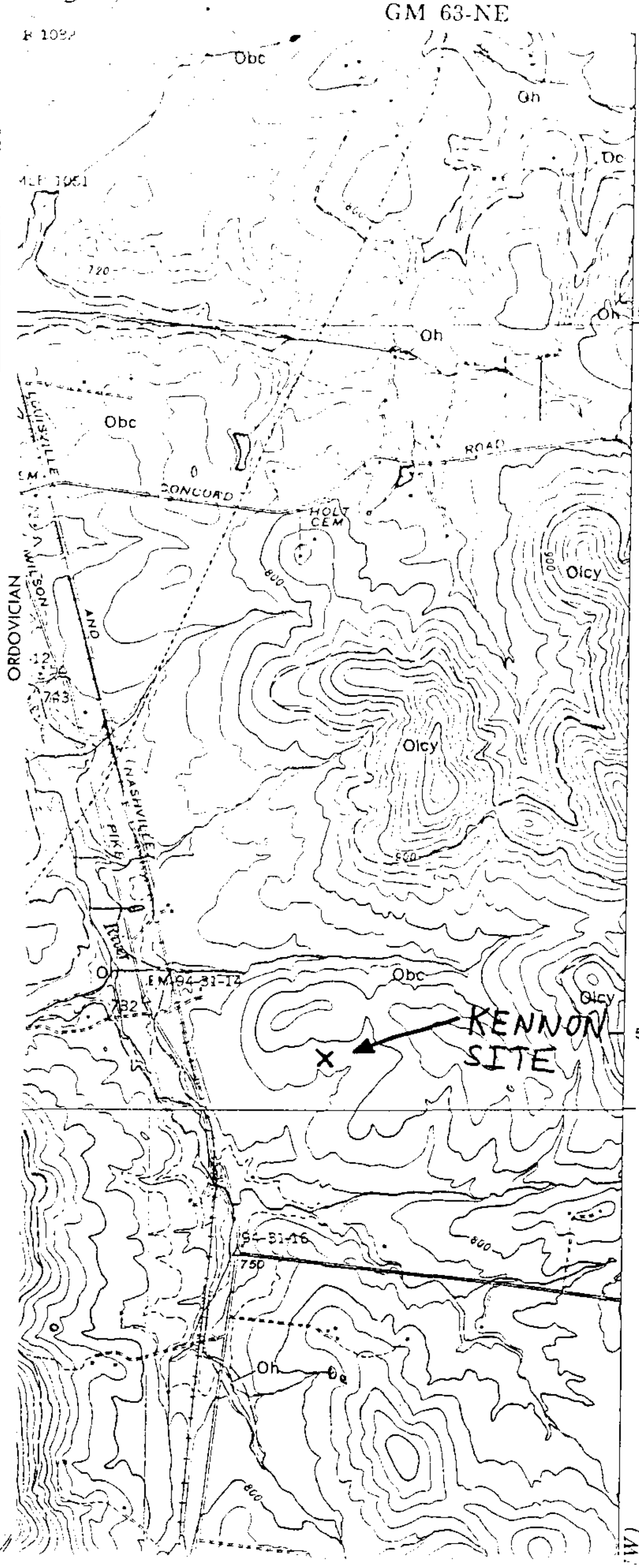
Olb

Lebanon Limestone

Limestone, medium- to medium dark-gray and brownish-gray to yellowish-brown, cryptocrystalline to very fine-grained with some beds ranging up to coarse-grained, thin-bedded with thin calcareous shale partings, fossiliferous. Maximum exposed thickness about 30 feet.

GEOLOGIC MAP FRANKLIN QUADRANGLE TENNESSEE

GM 63-NE

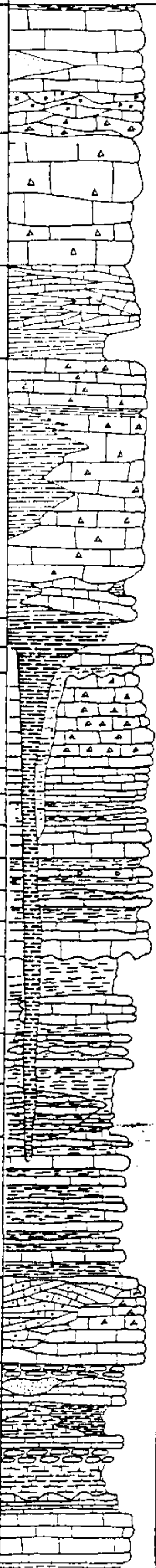


KENNON SITE

Site No. TND 981473575

Reference No. 6

BEDROCK GEOLOGY OF THE
NASHVILLE AND MIDDLE TENNESSEE AREA

SYSTEM	GROUP	FORMATION	ROCK STRATA	AVERAGE THICKNESS ft.	RANGE OF THICKNESS ft.
MISSISSIPPIAN		STE. GENEVIEVE (MONTEAGLE)		250	180-350
		ST. LOUIS		180	100-280
		WARSAW		100	40-150
		FT. PAYNE		250	200-400
DEVONIAN		CHATTANOOGA		20	10-70
		PEGRAM		17	0-30
		CAMDEN		95	0-220
		FLAT GAP		20	0-55
		ROSS		45	0-110
SILURIAN		DECATUR		VARIABLE	0-250
		BROWNSPORT			
	WAYNE				
		BRASSFIELD			
ORDOVICIAN		SEQUATCHIE		55	0-275
	MAYSVILLE	LEIPERS		70	0-160
	EDEN	INMAN		50	0-70
	NASHVILLE	CATHEYS		130	10-250
		BIGBY CANNON		80	50-100
		HERMITAGE		120	70-180
		CARTERS		60	37-93

GENERALIZED DESCRIPTION OF ROCKS OUTCROPPING IN NASHVILLE AND MIDDLE TENNESSEE.

STE. GENEVIEVE LIMESTONE: Gray to white limestone, variable bedding thickness, oolitic layers, gray chert near base. Weathers to present ground water table, very cavernous, develops karst topography, weathers to reddish brown clay 20-40 feet thick. Outcrops on Northern Highland Rim.

ST. LOUIS FORMATION: Brownish gray cherty limestone, thick bedded to massive, numerous gray to black chert beds and nodules. Weathers deep to present ground water table, develops karst topography, weathers to reddish brown clay about 20 feet thick. Outcrops on Highland Rim.

WARSAW LIMESTONE: Gray, cross bedded limestone, massive, fine grained, some chert. Weathers deep but sinkhole development not as intense as St. Louis Formation. Sandy and shaley facies near base. Weathers to reddish brown clay about 20 feet deep. Outcrops on Highland Rim.

FORT PAYNE FORMATION: Dark gray siltstone, shale, and cherty limestone. Thin beds of crinoidal limestone, green shale at base (Maury Shale), contains phosphate nodules. Weathers to residual cherty clay about 15 feet deep. Outcrops along Highland Rim and higher hills within Central Basin. Excellent road metal.

CHATTANOOGA SHALE: Dark grayish black fissle, carbonaceous shale, thin sandstone at base. Weathers to light buff clay. Outcrops on Highland Rim and on higher hills within Central Basin. Widely used by geologists as a mapping unit, both in surface and subsurface.

PEGRAM FORMATION: Light gray limestone, massive. Minor amounts of light gray shale and sandstone in lower portion. Outcrops mainly in the Kingston Springs area.

CAMDEN FORMATION: Thin to medium bedded blue gray, shaley limestone containing nodules and bands of chert. Chert beds average 6 to 12 inches thick and are seperated by white clay partings. Weathers to thin residual soil less than three feet thick then a thicker weathered layer of angular blocks and sharp fragments of chert rubble. Very difficult to drill or excavate with conventional excavation equipment. Outcrops mainly in Benton, Decatur, and Perry counties. Chert beds are used locally as road metal and ballast.

FLAT GAP LIMESTONE: Light gray and pink limestone, occasionally glauconitic in upper part. Outcrops in extreme western counties of Highland Rim. Very good concrete aggregate.

ROSS FORMATION: Alternating facies of thin limestone and thick shales. Shales are blue or greenish gray. Limestones weather to glades and shales generally do not have slope stability on steep road cuts.

SILURIAN SYSTEM: Extremely variable in outcrop and thickness. Major unconformity extends from base of Mississippian System through Devonion and Silurian Systems. Silurian is predominantly limestone and shaley limestone. See Tennessee Division Geology Bulletin 56 for complete description.

SEQUATCHIE FORMATION: Greenish gray, massive mudstone with some sand, shale, and limestone. Contains Mannie Shale Facies which is a green calcareous shale that weathers into laminated cobbles of green silt. Outcrops mostly in Lincoln, Franklin, and Marion Counties. Contains Fernvale Limestone Facies, which is an irregular bedded massive limestone containing enough limonite to be a low grade iron ore.

LEIPERS FORMATION: Dark blue gray, earthy, nodular limestone. Thin beds of limestone separated by shale mudstone and siltstone beds from a few inches to 10 feet thick. Weathers to light brown silty clay soil 3 to 5 feet thick. Weathering along fractures and faults can penetrate 20 feet into rock mass. Outcrops mostly along edge of Central Basin.

INMAN FORMATION: Greenish gray calcareous shale interbedded with thin beds of dense limestone. Weathers to thin clay soil. Outcrops in southeastern part of Middle Tennessee is a very restricted outcrop belt.

CATHEYS FORMATION: A complex mixture of shaley limestone units. Typically it is thin bedded, blue gray nodular limestone interbedded with thin partings of shale and siltstone. Weathers to thin silty clay soil usually 3 to 4 feet thick. Outcrops extensively in Central Basin.

BIGBY CANNON LIMESTONE: Composed of 3 facies; (1) the Bigby facies is blue gray, massive, granular, cross bedded, and phosphatic. (2) Dove facies is a light gray (Dove colored) dense fine grained limestone. (3) Cannon facies is blue gray limestone, massive but non-phosphatic. All facies weather to reddish-brown clay usually less than 10 feet thick. Some sinkhole development and considerable deep weathering along vertical fractures. Outcrops in Central Basin. Mined for phosphate in several counties of Central Basin.

HERMITAGE FORMATION: Variable rock units consisting of thin-bedded, dark blue-gray shaley limestone and sandy limestone in northwest part of Central Basin. Persistent layer of shale and phosphatic shale in central part of Central Basin. Silty shale and nodular limestone in south part of Central Basin. Weathers to a silty and sandy clay up to 20 feet thick. Outcrops extensively in Central Basin.

CARTERS LIMESTONE: Contains upper and Lower member separated by T^3 bentonite clay. Upper member is thin bedded, light gray shaley limestone about 10 feet thick. Lower member is massive, light gray, fine grained limestone about 50 feet thick and contains T^3 and T^1 bentonite clays. Weathers to brown plastic clay about 4 feet thick with some sink holes. Outcrops extensively in Central Basin.

LEBANON LIMESTONE: Blue-gray, dense, fine-grained, thin-bedded limestone. Bedding planes contain thin shale layers, weathers to loose slabs of limestone with very little residual soil. Forms cedar glades and has worm-eaten appearance. Outcrops in central part of Central Basin.

KENNON SITE

Site No. TND 981473575

Reference No. 7

-171 - '/-
DHS [illegible]
File
504-2/2

United States Department of the Interior

GEOLOGICAL SURVEY
Water Resources Division
Tennessee District

A-413 Federal Bldg.
U.S. Courthouse
Nashville, TN 37203
February 19, 1987

Mr. Todd Hughes
Tennessee Department of Health
and Environment
Customs House - 4th Floor
701 Broadway
Nashville, TN 37219-5403

94-508 (1)

Dear Todd:

We have completed observation well installations and logging for the Genesco Hazardous Waste Site Investigation. Enclosed please find tables of data on the new wells and a sample resistivity log. We are completing a first draft of a basic data report on the site study, but we thought that both you and Geraghty and Miller would like to have preliminary copies of this data. If you approve, let me know and I'll route copies to Don Brice of Geraghty and Miller.

Sincerely yours,

FOR THE DISTRICT CHIEF
Roger W. Lee
Roger W. Lee

Enclosure

LOCAL WELL NUMBER	LATITUDE (DEGREES)	LONGITUDE (DEGREES)	ALTITUDE OF LAND SURFACE (FEET)	DATE WELL CONSTRUCTED	DEPTH OF WELL (FEET)
WM:N-020	355809	0864626	740	10-18-84	350
WM:N-022	355805	0864627	710	05-01-81	158
WM:N-023	355756	0864625	720	08-14-85	1050
WM:N-024	355724	0864617	750	06-27-84	240
WM:N-033	355707	0864509	830	08-17-74	150
WM:N-038	355706	0864431	890	--	175
WM:N-039	355712	0864539	766.9	11-03-78	220
WM:N-040	355723	0864614	760	--	350
WM:N-041	355700	0864544	780.1	06-23-86	45.0
WM:N-041A	355700	0864544	780	09-23-86	225
WM:N-042	355701	0864557	754.0	06-23-86	35.0
WM:N-042A	355701	0864557	753.8	09-22-86	193
WM:N-043	355720	0864606	737.6	06-24-86	28.0
WM:N-043A	355720	0864606	738.4	10-07-86	102
WM:N-044	353718	0864610	744.1	06-25-86	34.1
WM:N-044A	353718	0864610	738.8	10-07-86	102
WM:N-045	355723	0864533	812.6	06-26-86	49.0
WM:N-045A	355723	0864532	812.6	10-10-86	167
WM:N-046	355732	0864602	758.0	06-30-86	30.0
WM:N-046A	355732	0864602	758.7	10-09-86	135
WM:N-047	355738	0864551	762.4	07-01-86	20.0
WM:N-047A	355738	0864551	759.9	10-09-86	162
WM:N-048	355733	0864540	806.4	07-01-86	45.0
WM:N-048A	355733	0864540	808.8	10-10-86	152
WM:N-050	355748	0864551	785.9	07-04-86	45.0
WM:N-050A	355748	0864551	786.8	10-08-86	162
WM:N-051	355745	0864601	754.1	07-05-86	25.0
WM:N-051A	355745	0864601	754.8	10-08-86	137
WM:N-052	355715	0864621	791.8	07-07-86	35.0
WM:N-052A	355715	0864621	792.9	10-06-86	132
WM:N-053	355654	0864550	795.8	07-08-86	55.0
WM:N-053A	355654	0864550	798.4	09-24-86	203
WM:N-054	355710	0864541	759.8	07-10-86	30.0
WM:N-054A	355710	0864541	760.3	10-13-86	139
WM:N-055	355714	0864545	757.8	07-11-86	30.0
WM:N-055A	355714	0864545	758.6	10-13-86	177
WM:N-056	355729	0864618	775	01-09-87	45.0
WM:N-056A	355729	0864618	775	01-12-87	175
WM:N-057	355713	0864552	795	01-07-87	57.0
WM:N-057A	355713	0864552	795	01-08-87	204
WM:N-058	355711	0864631	760	01-08-87	35.0
WM:N-058A	355711	0864631	760	01-09-87	165

LOCAL WELL NUMBER	DEPTH OF WELL (FEET)	BOTTOM OF CASING (FEET)	WATER-LEVEL DATE	WATER LEVEL (FEET)
WM:N-020	350	21.0	--	--
WM:N-022	158	20.0	--	--
WM:N-023	1050	20.0	--	--
WM:N-024	240	21.0	--	--
WM:N-033	150	--	--	--
WM:N-038	175	--	--	--
WM:N-039	220	20.0	--	--
WM:N-040	350	--	--	--
WM:N-041	45.0	10.0	02-05-87	10.05
WM:N-041A	225	62.0	02-05-87	39.13
WM:N-042	35.0	10.7	02-05-87	16.06
WM:N-042A	193	34.0	02-05-87	15.76
WM:N-043	28.0	5.00	02-05-87	25.53
WM:N-043A	102	15.0	02-05-87	9.27
WM:N-044	34.1	5.00	02-05-87	10.06
WM:N-044A	102	20.0	02-05-87	9.57
WM:N-045	49.0	--	02-05-87	30.94
WM:N-045A	167	59.0	02-05-87	71.46
WM:N-046	30.0	4.50	02-05-87	4.98
WM:N-046A	135	15.0	02-05-87	29.57
WM:N-047	20.0	3.10	02-05-87	5.92
WM:N-047A	162	17.0	02-05-87	35.83
WM:N-048	45.0	6.00	--	--
WM:N-048A	152	41.0	02-05-87	71.81
WM:N-050	45.0	10.0	02-05-87	11.70
WM:N-050A	162	55.0	02-05-87	80.82
WM:N-051	25.0	8.70	02-05-87	11.63
WM:N-051A	137	34.0	02-05-87	36.46
WM:N-052	35.0	19.5	02-05-87	19.50
WM:N-052A	132	33.0	02-05-87	57.94
WM:N-053	55.0	10.0	02-05-87	35.09
WM:N-053A	203	41.0	02-05-87	63.79
WM:N-054	30.0	4.50	02-05-87	2.69
WM:N-054A	139	32.0	02-05-87	17.85
WM:N-055	30.0	5.80	02-05-87	14.32
WM:N-055A	177	26.0	02-05-87	18.03
WM:N-056	775	20.0	02-05-87	22.54
WM:N-056A	775	67.0	02-05-87	113.29
WM:N-057	795	9.0	02-05-87	--
WM:N-057A	795	57.0	02-05-87	50.74
WM:N-058	760	12.5	02-05-87	16.51
WM:N-058A	760	35.0	02-05-87	16.97

WM:N-020
↓
040
are domestic wells.
No W/L Data
obtained

W/L referenced to
depth below land
surface.

WM:N-057 is a
flowing well w/
head > 10' above
land surface.

TABLE 1

CONSTRUCTION & STATUS OF DOMESTIC WELLS

WELL OWNER	DATE COMPLETED	CASING DIAM. (IN)	DEPTH OF CASING (FT)	TOTAL DEPTH (FT)	OPEN INTERVAL FORMATION	PRINCIPLE WATER BEARING ZONE (DEPTH FT)	STATUS	DRILLER
Allen				68-80			Residential	
Beyer	04/05/69	7	20	200	B,H,C	195	Residential	
Boswell	08/14/85	6.25	20	1050	H,,L,R,P,M,K	1020	Residential	Henry Drilling Co.
Denny	10/18/84	6.25	21	350	H,C,L	277	Residential	Henry Drilling Co.
Fischer	06/27/84	6.25	21	240	H,C,L	70,110	Residential	Henry Drilling Co.
Fletcher (1)				200	H,C,L	115-117	Residential	Henry Drilling Co.
Fletcher (2)				198	H,C,L	23, 115-116	Residential	Henry Drilling Co.
Foster (1)	08/08/85	6.25	20	260	H,C,L	146	Heat Pump	Henry Drilling Co.
Foster (2)	05/22/84	6.25	21	450	H,C,L.R	230	Residential	Henry Drilling Co.
Gore	06/04/70	6	20	75	H	65	Residential	
Holt		6	25	36	B	36	Residential	
Hall	03/03/86	6.25	24	400	H,C,L	80	Residential	Henry Drilling Co.
Howe				220	H,C,L	130	Residential	
Johnson	12/30/72	6	20	198	H,C	184	Residential	
Levine (1)	08/17/74	6	22	1235	H,C,L,R,P,M,K	1170	Residential	
Levine (2)				2200	H,C,L,R,P,M,K			
Myatt				73	H	18	Residential	
Legieza						28	Residential	
Mallory				350	H,C,L,R	112	Non-Potable	
Pewitt	09/16/81	6.25	21	105	H,C	105	Residential	Herman Clark Water Wells
Sullivan						28	Residential	
Wilson	02/28/84	6.25	21	260	B,H,C	160	Residential	Henry Drilling Co.

B = Bigby-Cannon Formation
H = Hermitage Formation
C = Carters Formation
L - Lebanon Formation

R = Ridley Formation
P = Pierce Formation
M = Murfreesboro Formation
K = Knox Group

Information Provided by TDHE, Division of Ground Water Protection.

KENNON SITE

Site No. TND 981473575

Reference No. 8

4301 Hillsboro Road, Suite 333
Nashville, TN 37215
615 383-3588

Engineering, Design & Geosciences Group, Inc.

March 19, 1986

Mr. Ronnie Bowers
Environmental Specialist/Chemist
Tennessee Division of Superfund
Customs House, Fourth Floor
701 Broadway
Nashville, TN 37219-5403

Re: Kennon Property
Analytical Results
Revised Well Sampling Plan

Dear Mr. Bowers:

Pursuant to our telephone conversation of March 18, 1986, I have enclosed a copy of our revised (3/14/86) Well Sampling Plan.

I have also enclosed copies of the analytical results obtained from the samples collected on February 21, 1986. To aid in identification of the samples, a copy of the obverse of the custody tag is attached to the respective analytical report.

As we discussed, the samples from wells 4, 5 and 6 had acetone present at low concentrations with no detectable concentrations of any of the other suspected solvents. These three wells are upgradient of the disposal site. The test pit data showed the presence of acetone in the disposal site but acetone was not the dominant solvent. Thus, the presence of acetone in wells 4, 5 and 6 is currently an unresolved issue but our investigation is continuing. I am convinced that acetone is not selectively migrating upgradient from the site to wells 4, 5 and 6. These comments are offered to reinforce my verbal comments and to caution against undue concern.

During our telephone conversation you requested additional information/data which will be provided in the very near future. Also, I would appreciate your sending to me all analytical data the

State has obtained in its sampling efforts. Such data could be of great value in our assessment activities.

Your continued cooperation in this very complex issue is greatly appreciated.

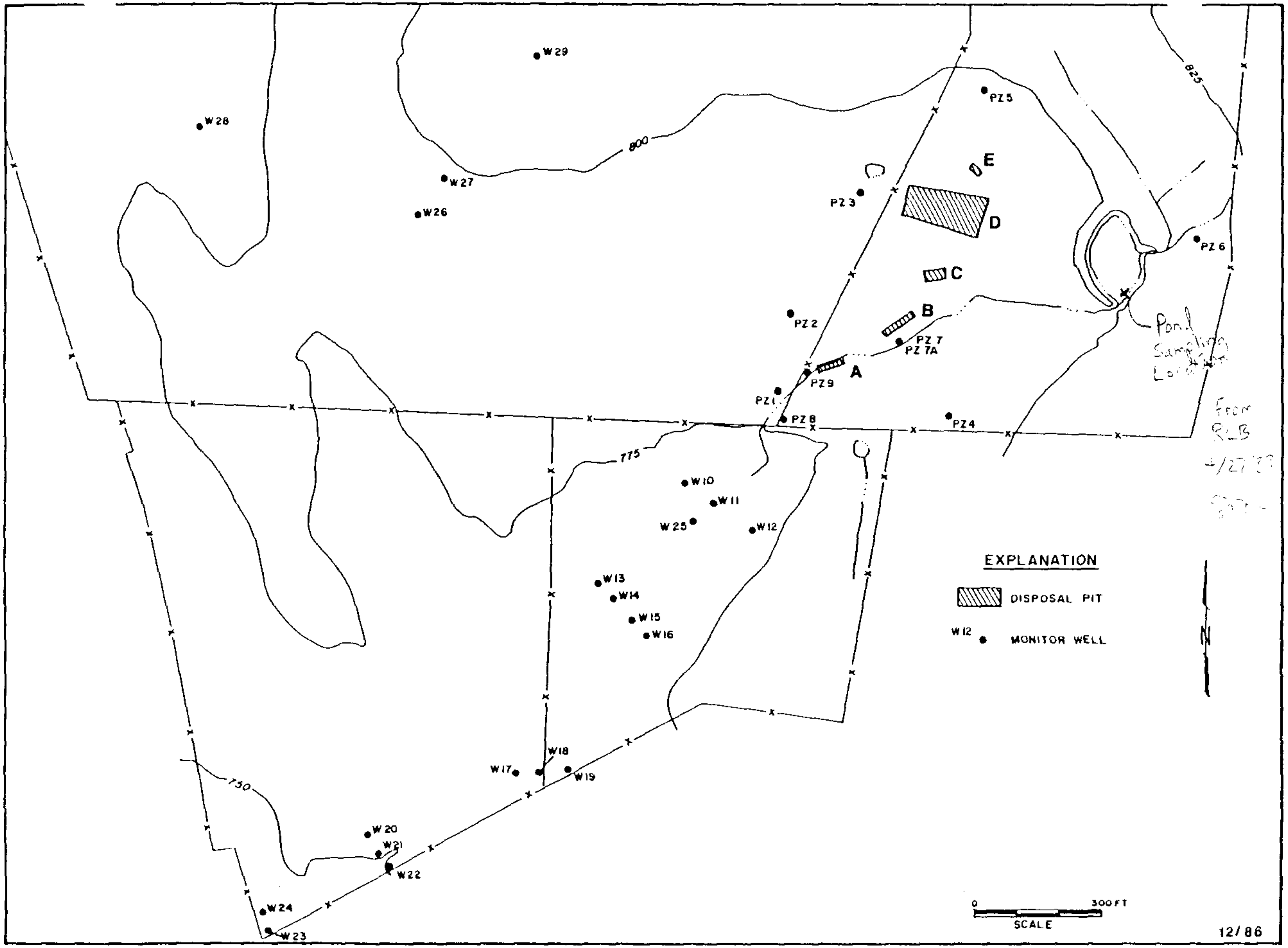
Very truly yours,

ENGINEERING, DESIGN &
GEOSCIENCES GROUP, INC.

V. Wayne McCoy

V. Wayne McCoy

VWM/lls
Enclosures: 2
cc: Ralph Mosely (with enclosures)



Pond Sampling Location

From RLB 4/27/89

FIGURE 9. MONITOR WELLS AND DISPOSAL PITS

[illegible] Hillsboro Road, Suite [illegible]
Nashville, TN [illegible]
615 383 [illegible]

Engineering, Design & Geosciences Group, [illegible]

EDGe

WELL SAMPLING PLAN
Kennon Property, Williamson County

- Starting with the upgradient wells, the wells should all be purged as follows:
  - Determine water elevation and record time and date of elevation determination.
  - Determine volume of water in well and purge by pump or bailer three volumes if possible. Record the date of purging and the starting and ending time of purging. Also, measure and record the total volume of water purged.
- Starting with the upgradient wells, the wells should be sampled by the following guidelines:
  - Attempt to sample within 24 hours of purging.
  - Sample, starting with upgradient wells, the deep wells before sampling any of the shallow wells.
  - Record water elevation prior to sampling.
  - A teflon bailer should be used to collect samples. Before each well sampling the bailer should be equipped with a clean, unused rope.
- Initially and before each well sampling, the bailer should be cleaned as follows:
  - Scrub using detergent.
  - Thoroughly rinse with deionized or distilled water until all soap and other residue is removed.
  - Rinse with reagent grade isopropyl alcohol, taking care to avoid allowing isopropyl alcohol to contact the bailer rope.
  - Following the isopropyl alcohol rinse, triple rinse the bailer with deionized or distilled water to remove the isopropyl alcohol.
- Sampling personnel use new disposable gloves prior to each well sampling.
- Since contaminants of concern may be heavier than water and are only slightly soluble in water, lower teflon bailer to bottom of well to collect sample.
- Collect and discard two (2) bailers of well water; the third bailer of well water should be used for the actual sample.
- Transfer sample from bailer to volatile organics vial with minimum of agitation and such that there are no entrained air bubbles.
- Collect duplicate samples from one well of each ten (10) wells sampled.
- Complete chain of custody card and attach to sample container, also label sample container.
- Keep samples chilled until delivery to laboratory.

Revised 3/14/86
VWM/lls

236594

[illegible]
[illegible]
NASHVILLE, TENN. [illegible] Lab No.

SAMPLE IDENTIFICATION AND CUSTODY TAG

1. Source of Sample and COMPLETE Sample Identification [illegible]
~~Well~~ # Pond

2. County Williamson Nearest Town or City BRENTWOOD
3. Type of Sample WATER
4. Date Collected 2/21/86 Time Collected 10:00 AM
5. Name of Sampler (Please Print) MARK HOBBS
6. Names of Others Present at Time Sample Collected
7. Field No. # 3 Approximate Vol. of Sample 40 ml
8. Describe field collection procedure and special handling or preservation of this sample
WATER - AS PER PROJECT PROTOCOL
9. Describe how sample conveyed or transported to the laboratory PERSONAL TRUCK
10. Requested Analyses

WATER POND FIELD# 3 | 0296594 | 296594

REFERRING CLIENT	DATE COLLECTED	CLIENT LAB NO.	TIME COLLECTED	RECEIVED	REPORTED
GENESCO, INC., EMP. & ENV. SAFET	02/21/86	00000	10:00	02/21/86	03/04/86

TEST	RESULT	REFERENCE LIMITS	UNITS
VOLATILE ORGANICS			
ACROLEIN	<0.10		PPM
ACRYLONITRILE	<0.10		PPM
BENZENE	<0.010		PPM
BIS(CHLOROMETHYL)ETH	<0.010		PPM
BROMOFORM	<0.010		PPM
CARBON TETRACHLORIDE	<0.010		PPM
CHLOROBENZENE	<0.010		PPM
CHLORODIBRMETHANE	<0.010		PPM
CHLOROETHANE	<0.010		PPM
2-CLETHYVINYL ETHER	<0.010		PPM
CHLOROFORM	<0.010		PPM
DI-CL-BR-METHANE	<0.010		PPM
DI-CL-DI-F-METHANE	<0.010		PPM
1-1-DICHLOROETHANE	<0.010		PPM
1,2-DICHLOROETHANE	<0.010		PPM
1,1-DI-CL-ETHYLENE	<0.010		PPM
1,2-DICHLOROPROPANE	<0.010		PPM
1,2-DI-CL-PROPYLENE	<0.010		PPM
ETHYLBENZENE	<0.010		PPM
METHYL BROMIDE	<0.010		PPM
METHYL CHLORIDE	<0.010		PPM
METHYLENE CHLORIDE	<0.010		PPM
1,1,2,2 TET CL ETHAN	<0.010		PPM
TETRACHLOROETHYLENE	<0.010		PPM
TOLUENE	<0.010		PPM
1,2-DICHLOROETHYLENE	<0.010		PPM
1,1,1-TRI-CL-ETHANE	<0.010		PPM
1,1,2-TRI-CL-ETHANE	<0.010		PPM
TRICHLOROETHYLENE	<0.010		PPM
TRI-CL-F-METHANE	<0.010		PPM
VINYL CHLORIDE	<0.010		PPM
2-BUTANONE	<0.10		PPM
HEXANE	<0.10		PPM
ACETONE	<0.10		PPM
ETHYL ACETATE	<0.10		PPM

GENESCO, INC., EMP. & ENV. SAFET
RALPH E. MOSELY, DIRECTOR
430 GENESCO PARK
NASHVILLE TN 37202 4056

SPECIALIZED ASSAYS
206 12th Ave., So. - Nashville, TN 37203
Phone 1-615-255-5786

[illegible]
NASHVILLE, TENNESSEE [illegible] (Lab No)

SAMPLE IDENTIFICATION AND CUSTODY TAG

1. Source of Sample and COMPLETE Sample Identification GENESCO
~~Well #~~ Pond sediment

2. County Williamson Nearest Town or City BRENTWOOD
3. Type of Sample WATER
4. Date Collected 2/21/86 Time Collected 9:53
5. Name of Sampler (Please Print) MARK HOBBS
6. Names of Others Present at Time Sample Collected
7. Field No #2 Approximate Vol. of Sample 200 ml
8. Describe field collection procedure and special handling or preservation of this sample
WATER - AS PER PROJECT PROTOCOL
9. Describe how sample conveyed or transported to the laboratory PERSONAL TRUCK
10. Requested Analyses

POND SEDIMENT FIELD #2	0296599	296599

REFERRING CLIENT	DATE COLLECTED	CLIENT LAB NO.	TIME COLLECTED	RECEIVED	REPORTED
GENESCO, INC., EMP. & ENV. SAFET	02/21/86	00000	09:58	02/21/86	03/04/86

TEST	RESULT	REFERENCE LIMITS	UNITS
VOLATILE ORGANICS			
ACROLEIN	<0.100		PPM
ACRYLONITRILE	<0.100		PPM
BENZENE	<0.050		PPM
BIS(CHLOROMETHYL)ETH	<0.050		PPM
BROMOFORM	<0.050		PPM
CARBON TETRACHLORIDE	<0.050		PPM
CHLOROBENZENE	<0.050		PPM
CHLORODIBRMETHANE	<0.050		PPM
CHLOROETHANE	<0.050		PPM
2-CLETHYVINYL ETHER	<0.050		PPM
CHLOROFORM	<0.050		PPM
DI-CL-BR-METHANE	<0.050		PPM
DI-CL-DI-F-METHANE	<0.050		PPM
1-1-DICHLOROETHANE	<0.050		PPM
1,2-DICHLOROETHANE	<0.050		PPM
1,1-DI-CL-ETHYLENE	<0.050		PPM
1,2-DICHLOROPROPANE	<0.050		PPM
1,2-DI-CL-PROPYLENE	<0.050		PPM
ETHYLBENZENE	<0.050		PPM
METHYL BROMIDE	<0.050		PPM
METHYL CHLORIDE	<0.050		PPM
METHYLENE CHLORIDE	<0.050		PPM
1,1,2,2 TET CL ETHAN	<0.050		PPM
TETRACHLOROETHYLENE	<0.050		PPM
TOLUENE	<0.050		PPM
1,2-DICHLOROETHYLENE	<0.050		PPM
1,1,1-TRI-CL-ETHANE	<0.050		PPM
1,1,2-TRI-CL-ETHANE	<0.050		PPM
TRICHLOROETHYLENE	<0.050		PPM
TRI-CL-F-METHANE	<0.050		PPM
VINYL CHLORIDE	<0.050		PPM
2-BUTANONE	<0.10		PPM
HEXANE	<0.10		PPM
ACETONE	<0.10		PPM
ETHYL ACETATE	<0.10		PPM

GENESCO, INC., EMP. & ENV. SAFET
RALPH E. MOSELY, DIRECTOR
430 GENESCO PARK
NASHVILLE TN 37202 4056

SPECIALIZED ASSAYS

206 12th Ave., So. - Nashville, TN 37203
Phone 1-615-255-5786

Form No. 3031

ENGINEERING, DESIGN & GEOSCIENCES GROUP, INC.
4401 HILLSBORO ROAD, SUITE 233
NASHVILLE, TENNESSEE 37215 (Lab No)

98598

SAMPLE IDENTIFICATION AND CUSTODY TAG

1. Source of Sample and COMPLETE Sample Identification GENESCO
[illegible] Lake adjacent to Hackett property. located approx. 50 yards upstream from Wilson Pike
2. County Williamson Nearest Town or City BRENTWOOD
3. Type of Sample WATER
4. Date Collected 2/21/96 Time Collected 10:46
5. Name of Sampler (Please Print) MARK HOBBS
6. Names of Others Present at Time Sample Collected W. McCoy, State Representatives
7. Field No. # 6 Approximate Vol. of Sample 200 ml
8. Describe field collection procedure and special handling or preservation of this sample WATER - AS PER PROJECT PROTOCOL
9. Describe how sample conveyed or transported to the laboratory PERSONAL TRUCK
10. Requested Analyses

DITCH-HACKETT PROPERTY FIELD6	0296598	296598

REFERRING CLIENT	DATE COLLECTED	CLIENT LAB NO.	TIME COLLECTED	RECEIVED	REPORTED
GENESCO, INC., EMP.& ENV. SAFET	02/21/86	00000	10:46	02/21/86	03/04/86

TEST	RESULT	REFERENCE LIMITS	UNITS
VOLATILE ORGANICS			
ACROLEIN	<0.100		PPM
ACRYLONITRILE	<0.100		PPM
BENZENE	<0.050		PPM
BIS(CHLOROMETHYL)ETH	<0.050		PPM
BROMOFORM	<0.050		PPM
CARBON TETRACHLORIDE	<0.050		PPM
CHLOROBENZENE	<0.050		PPM
CHLORODIBRMETHANE	<0.050		PPM
CHLOROETHANE	<0.050		PPM
2-CLETHYVINYL ETHER	<0.050		PPM
CHLOROFORM	<0.050		PPM
DI-CL-BR-METHANE	<0.050		PPM
DI-CL-DI-F-METHANE	<0.050		PPM
1-1-DICHLOROETHANE	<0.050		PPM
1,2-DICHLOROETHANE	<0.050		PPM
1,1-DI-CL-ETHYLENE	<0.050		PPM
1,2-DICHLOROPROPANE	<0.050		PPM
1,2-DI-CL-PROPYLENE	<0.050		PPM
ETHYLBENZENE	<0.050		PPM
METHYL BROMIDE	<0.050		PPM
METHYL CHLORIDE	<0.050		PPM
METHYLENE CHLORIDE	<0.050		PPM
1,1,2,2 TET CL ETHAN	<0.050		PPM
TETRACHLOROETHYLENE	<0.050		PPM
TOLUENE	<0.050		PPM
1,2-DICHLOROETHYLENE	<0.050		PPM
1,1,1-TRI-CL-ETHANE	<0.050		PPM
1,1,2-TRI-CL-ETHANE	<0.050		PPM
TRICHLOROETHYLENE	<0.050		PPM
TRI-CL-F-METHANE	<0.050		PPM
VINYL CHLORIDE	<0.050		PPM
2-BUTANONE	<0.10		PPM
HEXANE	<0.10		PPM
ACETONE	<0.10		PPM
ETHYL ACETATE	<0.10		PPM

GENESCO, INC., EMP.& ENV. SAFET
RALPH E. MOSELY, DIRECTOR
430 GENESCO PARK
NASHVILLE TN 37202 4056

SPECIALIZED ASSAYS
206 12th Ave., So - Nashville, TN 37203
Phone 1-615-255-5786

ENGINEERING, DESIGN & GEOSCIENCES GROUP, INC.
4301 HILLSBORO ROAD SUITE 333
NASHVILLE, TENNESSEE 37215 (Lab No.)

296590

SAMPLE IDENTIFICATION AND CUSTODY TAG

1. Source of Sample and COMPLETE Sample Identification GENESCO
Well #3

2. County Williamson Nearest Town or City BRENTWOOD
3. Type of Sample WATER
4. Date Collected 2/21/86 Time Collected 11:56 AM
5. Name of Sampler (Please Print) MARK Hobbs
6. Names of Others Present at Time Sample Collected
7. Field No. #58 Approximate Vol. of Sample 40 ml
8. Describe field collection procedure and special handling or preservation of this sample
WATER - AS PER PROJECT PROTOCOL
9. Describe how sample conveyed or transported to the laboratory PERSONAL TRUCK
10. Requested Analyses

WATER WELL #3 FIELD #8.	0296590	296590

REFERRING CLIENT	DATE COLLECTED	TIME COLLECTED	RECEIVED
	02/21/86	11:56	02/21/86

	CLIENT LAB NO.	REPORTED
GENESCO, INC., EMP. & ENV. SAFET	00000	03/04/86

TEST	RESULT	REFERENCE LIMITS	UNITS
VOLATILE ORGANICS			
ACROLEIN	<0.10		PPM
ACRYLONITRILE	<0.10		PPM
BENZENE	<0.010		PPM
BIS(CHLOROMETHYL)ETH	<0.010		PPM
BROMOFORM	<0 010		PPM
CARBON TETRACHLORIDE	<0.010		PPM
CHLOROBENZENE	<0.010		PPM
CHLORODIBRMETHANE	<0.010		PPM
CHLOROETHANE	<0.010		PPM
2-CLETHYVINYL ETHER	<0.010		PPM
CHLOROFORM	<0.010		PPM
DI-CL-BR-METHANE	<0.010		PPM
DI-CL-DI-F-METHANE	<0.010		PPM
1-1-DICHLOROETHANE	<0.010		PPM
1,2-DICHLOROETHANE	<0.010		PPM
1,1-DI-CL-ETHYLENE	<0.010		PPM
1,2-DICHLOROPROPANE	<0.010		PPM
1,2-DI-CL-PROPYLENE	<0.010		PPM
ETHYLBENZENE	<0.010		PPM
METHYL BROMIDE	<0.010		PPM
METHYL CHLORIDE	<0.010		PPM
METHYLENE CHLORIDE	<0.010		PPM
1,1,2,2 TET CL ETHAN	<0.010		PPM
TETRACHLOROETHYLENE	<0.010		PPM
TOLUENE	<0.010		PPM
1,2-DICHLOROETHYLENE	<0.010		PPM
1,1,1-TRI-CL-ETHANE	<0.010		PPM
1,1,2-TRI-CL-ETHANE	<0.010		PPM
TRICHLOROETHYLENE	<0.010		PPM
TRI-CL-F-METHANE	<0.010		PPM
VINYL CHLORIDE	<0.010		PPM
2-BUTANONE	<0.10		PPM
HEXANE	<0.10		PPM
ACETONE	<0.10		PPM
ETHYL ACETATE	<0.10		PPM

GENESCO, INC., EMP. & ENV. SAFET
RALPH E. MOSELY, DIRECTOR
430 GENESCO PARK
NASHVILLE TN 37202 4056

SPECIALIZED ASSAYS
206 12th Ave., So. · Nashville, TN 37203
Phone 1-615-255-5786

ENGINEERING, DESIGN & GEOSCIENCES GROUP, INC.
4301 HILLSBORO ROAD SUITE 233
NASHVILLE TENNESSEE 37215 (Lab No)

593

SAMPLE IDENTIFICATION AND CUSTODY TAG

1. Source of Sample and COMPLETE Sample Identification GENCO
Well # 7 Shallow
2. County Williamson Nearest Town or City BRENTWOOD
3. Type of Sample WATER
4. Date Collected 2/21/96 Time Collected 1:01 PM
5. Name of Sampler (Please Print) Mark Hobbs
6. Names of Others Present at Time Sample Collected
7. Field No. # 14 Approximate Vol. of Sample 40ml
8. Describe field collection procedure and special handling or preservation of this sample
WATER - AS PER PROJECT PROTOCOL
9. Describe how sample conveyed or transported to the laboratory PERSONAL TRUCK
10. Requested Analyses

WATER WELL [illegible] 0296593 296593

REFERRING CLIENT	DATE COLLECTED	TIME COLLECTED	RECEIVED
	02/21/86	13:07	02/21/86
GENESCO, INC., EMP. & ENV. SAFET	CLIENT LAB NO. 00000		REPORTED 03/05/86

TEST	RESULT	REFERENCE LIMITS	UNITS
XYLENE	2.00		PPM
VOLATILE ORGANICS			
ACROLEIN	<0.100		PPM
ACRYLONITRILE	<0.100		PPM
BENZENE	<0.010		PPM
BIS(CHLOROMETHYL)ETH	<0.010		PPM
BROMOFORM	<0.010		PPM
CARBON TETRACHLORIDE	<0.010		PPM
CHLOROBENZENE	<0.010		PPM
CHLORODIBRMETHANE	<0.010		PPM
CHLOROETHANE	<0.010		PPM
2-CLETHYVINYL ETHER	<0.010		PPM
CHLOROFORM	<0.010		PPM
DI-CL-BR-METHANE	<0.010		PPM
DI-CL-DI-F-METHANE	<0.010		PPM
1-1-DICHLOROETHANE	<0.010		PPM
1,2-DICHLOROETHANE	5.700		PPM
1,1-DI-CL-ETHYLENE	<0.010		PPM
1,2-DICHLOROPROPANE	<0.010		PPM
1,2-DI-CL-PROPYLENE	<0.010		PPM
ETHYLBENZENE	<0.010		PPM
METHYL BROMIDE	<0.010		PPM
METHYL CHLORIDE	<0.010		PPM
METHYLENE CHLORIDE	12.5		PPM
1,1,2,2 TET CL ETHAN	<0.010		PPM
TETRACHLOROETHYLENE	6.5		PPM
TOLUENE	359.7		PPM
1,2-DICHLOROETHYLENE	0.622		PPM
1,1,1-TRI-CL-ETHANE	15.1		PPM
1,1,2-TRI-CL-ETHANE	<0.010		PPM
TRICHLOROETHYLENE	1.00		PPM
TRI-CL-F-METHANE	<0.010		PPM
VINYL CHLORIDE	<0.010		PPM
2-BUTANONE	6.91		PPM
HEXANE	<0.10		PPM
ACETONE	2.97		PPM
ETHYL ACETATE	<0.10		PPM

GENESCO, INC., EMP. & ENV. SAFET
RALPH E. MOSELY, DIRECTOR
430 GENESCO PARK
NASHVILLE TN 37202 4056

SPECIALIZED ASSAYS
206 12th Ave., So. · Nashville, TN 37202
Phone 1-615-255-5786

296585

ENGINEERING, DESIGN & GEOSCIENCES GROUP, INC.
4301 HILLSBORO ROAD, SUITE 333
NASHVILLE, TENNESSEE 37215 (Lab No.)

SAMPLE IDENTIFICATION AND CUSTODY TAG

1. Source of Sample and COMPLETE Sample Identification GENESCO
WELL # 7 SHALLOW

2. County Williamson Nearest Town or City BRENTWOOD
3. Type of Sample WATER
4. Date Collected 2/21/96 Time Collected 1:07 PM
5. Name of Sampler (Please Print) MARK HOBBS
6. Names of Others Present at Time Sample Collected
7. Field No. # 15 Approximate Vol. of Sample 40 ml
8. Describe field collection procedure and special handling or preservation of this sample
WATER - AS PER PROJECT PROTOCOL
9. Describe how sample conveyed or transported to the laboratory PERSONAL TRUCK
10. Requested Analyses

WATER WELL#7 SHALLOW FIELD#[illegible] | SPECIMEN I NUMBER 0296585 | 296585

REFERRING CLIENT	DATE COLLECTED	TIME COLLECTED	RECEIVED
	02/21/86	13:07	02/21/86
GENESCO, INC., EMP. & ENV. SAFET	CLIENT LAB NO. 00000		REPORTED 03/05/86

TEST	RESULT	REFERENCE LIMITS	UNITS
XYLENE	1.8		PPM
VOLATILE ORGANICS			
ACROLEIN	<0.100		PPM
ACRYLONITRILE	<0.100		PPM
BENZENE	<0.010		PPM
BIS(CHLOROMETHYL)ETH	<0.010		PPM
BROMOFORM	<0.010		PPM
CARBON TETRACHLORIDE	<0.010		PPM
CHLOROBENZENE	<0.010		PPM
CHLORODIBRMETHANE	<0.010		PPM
CHLOROETHANE	<0.010		PPM
2-CLETHYVINYL ETHER	<0.010		PPM
CHLOROFORM	<0.010		PPM
DI-CL-BR-METHANE	<0.010		PPM
DI-CL-DI-F-METHANE	<0.010		PPM
1-1-DICHLOROETHANE	<0.010		PPM
1,2-DICHLOROETHANE	5.300		PPM
1,1-DI-CL-ETHYLENE	<0.010		PPM
1,2-DICHLOROPROPANE	<0.010		PPM
1,2-DI-CL-PROPYLENE	<0.010		PPM
ETHYLBENZENE	<0.010		PPM
METHYL BROMIDE	<0.010		PPM
METHYL CHLORIDE	<0.010		PPM
METHYLENE CHLORIDE	10.800		PPM
1,1,2,2 TET CL ETHAN	<0.010		PPM
TETRACHLOROETHYLENE	6.000		PPM
TOLUENE	361.2		PPM
1,2-DICHLOROETHYLENE	0.700		PPM
1,1,1-TRI-CL-ETHANE	14.300		PPM
1,1,2-TRI-CL-ETHANE	<0.010		PPM
TRICHLOROETHYLENE	0.900		PPM
TRI-CL-F-METHANE	<0.010		PPM
VINYL CHLORIDE	<0.010		PPM
2-BUTANONE	6.58		PPM
HEXANE	<0.10		PPM
ACETONE	2.96		PPM
ETHYL ACETATE	<0.10		PPM

GENESCO, INC., EMP. & ENV. SAFET
RALPH E. MOSELY, DIRECTOR
430 GENESCO PARK
NASHVILLE TN 37202 4056

SPECIALIZED ASSAYS
206 12th Ave., So. - Nashville, TN 37203
Phone 1-615-255-5786

965591

ENGINEERING, DESIGN & GEOSCIENCES GROUP, INC.
4... HILLSBORO ROAD, SUITE 333
NASHVILLE, TENNESSEE 37215

(Lab No.

SAMPLE IDENTIFICATION AND CUSTODY TAG

1. Source of Sample and COMPLETE Sample Identification Gensco
   Well # 7deep
2. County Williamson Nearest Town or City Brentwood
3. Type of Sample Water
4. Date Collected 2/20/86 Time Collected 12:52
5. Name of Sampler (Please Print) Mark Hobbs
6. Names of Others Present at Time Sample Collected
7. Field No. #12 Approximate Vol. of Sample 40ml
8. Describe field collection procedure and special handling or preservation of this sample
   Water - As per project protocol
9. Describe how sample conveyed or transported to the laboratory personal truck
10. Requested Analyses

SPECIMEN	SPECIMEN NUMBER	
WATER WELL#7 DEEP FIELD #12	0296591	296591

REFERRING CLIENT	DATE COLLECTED	TIME COLLECTED	RECEIVED
	02/20/86	12:52	02/21/86
GENESCO, INC., EMP. & ENV. SAFET		CLIENT LAB NO. 00000	REPORTED 03/05/86

TEST	RESULT	REFERENCE LIMITS	UNITS
XYLENE	0.308		PPM
VOLATILE ORGANICS			
ACROLEIN	<0.10		PPM
ACRYLONITRILE	<0.10		PPM
BENZENE	0.162		PPM
BIS(CHLOROMETHYL)ETH	<0.010		PPM
BROMOFORM	<0.010		PPM
CARBON TETRACHLORIDE	<0.010		PPM
CHLOROBENZENE	<0.010		PPM
CHLORODIBRMETHANE	<0.010		PPM
CHLOROETHANE	<0.010		PPM
2-CLETHYVINYL ETHER	<0.010		PPM
CHLOROFORM	<0.010		PPM
DI-CL-BR-METHANE	<0.010		PPM
DI-CL-DI-F-METHANE	<0.010		PPM
1-1-DICHLOROETHANE	0.801		PPM
1,2-DICHLOROETHANE	1.200		PPM
1,1-DI-CL-ETHYLENE	0.035		PPM
1,2-DICHLOROPROPANE	<0.010		PPM
1,2-DI-CL-PROPYLENE	<0.010		PPM
ETHYLBENZENE	<0.010		PPM
METHYL BROMIDE	<0.010		PPM
METHYL CHLORIDE	<0.010		PPM
METHYLENE CHLORIDE	2.200		PPM
1,1,2,2 TET CL ETHAN	<0.010		PPM
TETRACHLOROETHYLENE	0.688		PPM
TOLUENE	81.80		PPM
1,2-DICHLOROETHYLENE	1.100		PPM
1,1,1-TRI-CL-ETHANE	6.100		PPM
1,1,2-TRI-CL-ETHANE	<0.010		PPM
TRICHLOROETHYLENE	0.343		PPM
TRI-CL-F-METHANE	<0.010		PPM
VINYL CHLORIDE	<0.010		PPM
2-BUTANONE	3.15		PPM
HEXANE	0.10		PPM
ACETONE	2.02		PPM
ETHYL ACETATE	<0.10		PPM

GENESCO, INC., EMP. & ENV. SAFET
RALPH E. MOSELY, DIRECTOR
430 GENESCO PARK
NASHVILLE TN 37202 4056

SPECIALIZED ASSAYS

206 12th Ave., So. - Nashville, TN 37203
Phone 1-615-255-5786

Form No. 3031

16597

ENGINEERING, DESIGN & GEOSCIENCES GROUP, INC.
4301 HILLSBORO ROAD, SUITE 333
NASHVILLE, TENNESSEE 37215 (Lab No)

SAMPLE IDENTIFICATION AND CUSTODY TAG

1. Source of Sample and COMPLETE Sample Identification GENESCO
Well # 9
2. County Williamson Nearest Town or City BRENTWOOD
3. Type of Sample WATER
4. Date Collected 2/21/96 Time Collected 12:42 PM
5. Name of Sampler (Please Print) Mark Hobbs
6. Names of Others Present at Time Sample Collected
7. Field No. # 11 Approximate Vol. of Sample 40ml
8. Describe field collection procedure and special handling or preservation of this sample
WATER - AS PER PROJECT PROTOCOL
9. Describe how sample conveyed or transported to the laboratory PERSONAL TRUCK
10. Requested Analyses

SPECIMEN	SPECIMEN ID NUMBER	ACCESSION NO.
WATER WELL#9 FIELD #11	0296597	296597

REFERRING CLIENT	DATE COLLECTED	TIME COLLECTED	RECEIVED
	02/21/86	12:42	02/21/86
	CLIENT LAB NO.		REPORTED
GENESCO, INC.,EMP.& ENV. SAFET	00000		03/04/86

TEST	RESULT	REFERENCE LIMITS	UNITS
VOLATILE ORGANICS			
ACROLEIN	<0.10		PPM
ACRYLONITRILE	<0.10		PPM
BENZENE	<0.010		PPM
BIS(CHLOROMETHYL)ETH	<0.010		PPM
BROMOFORM	<0.010		PPM
CARBON TETRACHLORIDE	<0.010		PPM
CHLOROBENZENE	<0.010		PPM
CHLORODIBRMETHANE	<0.010		PPM
CHLOROETHANE	<0.010		PPM
2-CLETHYVINYL ETHER	<0.010		PPM
CHLOROFORM	<0.010		PPM
DI-CL-BR-METHANE	<0.010		PPM
DI-CL-DI-F-METHANE	<0.010		PPM
1-1-DICHLOROETHANE	0.258		PPM
1,2-DICHLOROETHANE	0.063		PPM
1,1-DI-CL-ETHYLENE	<0.010		PPM
1,2-DICHLOROPROPANE	<0.010		PPM
1,2-DI-CL-PROPYLENE	<0.010		PPM
ETHYLBENZENE	<0.010		PPM
METHYL BROMIDE	<0.010		PPM
METHYL CHLORIDE	<0.010		PPM
METHYLENE CHLORIDE	0.025		PPM
1,1,2,2 TET CL ETHAN	<0.010		PPM
TETRACHLOROETHYLENE	<0.010		PPM
TOLUENE	<0.010		PPM
1,2-DICHLOROETHYLENE	0.184		PPM
1,1,1-TRI-CL-ETHANE	0.095		PPM
1,1,2-TRI-CL-ETHANE	<0.010		PPM
TRICHLOROETHYLENE	<0.010		PPM
TRI-CL-F-METHANE	<0.010		PPM
VINYL CHLORIDE	<0.010		PPM
2-BUTANONE	<0.10		PPM
HEXANE	<0.10		PPM
ACETONE	0.59		PPM
ETHYL ACETATE	<0.10		PPM

GENESCO, INC.,EMP.& ENV. SAFET
RALPH E. MOSELY, DIRECTOR
430 GENESCO PARK
NASHVILLE TN 37202 4056

SPECIALIZED ASSAYS

206 12th Ave., So. - Nashville, TN 37203
Phone 1-615-255-5786

m No. 3031

ENGINEERING, DESIGN & GEOSCIENCES GROUP, INC.
4301 HILLSBORO ROAD, SUITE 333
NASHVILLE, TENNESSEE 37215 (Lab No.)

296592

SAMPLE IDENTIFICATION AND CUSTODY TAG

1. Source of Sample and COMPLETE Sample Identification GENESCO
WELL #1
2. County Williamson Nearest Town or City BRENTWOOD
3. Type of Sample WATER
4. Date Collected 2/21/86 Time Collected 12:27 am
5. Name of Sampler (Please Print) MARK HOBBS
6. Names of Others Present at Time Sample Collected
7. Field No. # 10 Approximate Vol. of Sample 40 ml
8. Describe field collection procedure and special handling or preservation of this sample
WATER - AS PER PROJECT PROTOCOL
9. Describe how sample conveyed or transported to the laboratory personal truck
10. Requested Analyses

WATER WELL #1 FIELD #10 0296592 296592

REFERRING CLIENT	DATE COLLECTED	CLIENT LAB NO	TIME COLLECTED	RECEIVED	REPORTED
GENESCO, INC., EMP. & ENV. SAFET	02/21/86	00000	12:27	02/21/86	03/04/86

TEST	RESULT	REFERENCE LIMITS	UNITS
VOLATILE ORGANICS			
ACROLEIN	<0.10		PPM
ACRYLONITRILE	<0.10		PPM
BENZENE	<0.010		PPM
BIS(CHLOROMETHYL)ETH	<0.010		PPM
BROMOFORM	<0.010		PPM
CARBON TETRACHLORIDE	<0.010		PPM
CHLOROBENZENE	<0.010		PPM
CHLORODIBRMETHANE	<0.010		PPM
CHLOROETHANE	<0.010		PPM
2-CLETHYVINYL ETHER	<0.010		PPM
CHLOROFORM	<0.010		PPM
DI-CL-BR-METHANE	<0.010		PPM
DI-CL-DI-F-METHANE	<0.010		PPM
1-1-DICHLOROETHANE	0.116		PPM
1,2-DICHLOROETHANE	0.030		PPM
1,1-DI-CL-ETHYLENE	0.011		PPM
1,2-DICHLOROPROPANE	<0.010		PPM
1,2-DI-CL-PROPYLENE	<0.010		PPM
ETHYLBENZENE	<0.010		PPM
METHYL BROMIDE	<0.010		PPM
METHYL CHLORIDE	<0.010		PPM
METHYLENE CHLORIDE	0.050		PPM
1,1,2,2 TET CL ETHAN	<0.010		PPM
TETRACHLOROETHYLENE	<0.010		PPM
TOLUENE	1.156		PPM
1,2-DICHLOROETHYLENE	0.446		PPM
1,1,1-TRI-CL-ETHANE	<0.010		PPM
1,1,2-TRI-CL-ETHANE	<0.010		PPM
TRICHLOROETHYLENE	<0.010		PPM
TRI-CL-F-METHANE	<0.010		PPM
VINYL CHLORIDE	<0.010		PPM
2-BUTANONE	0.53		PPM
HEXANE	<0.10		PPM
ACETONE	0.47		PPM
ETHYL ACETATE	<0.10		PPM

GENESCO, INC., EMP. & ENV. SAFET
RALPH E. MOSELY, DIRECTOR
430 GENESCO PARK
NASHVILLE TN 37202 4056

SPECIALIZED ASSAYS

206 12th Ave., So. - Nashville, TN 37203
Phone 1-615-255-5786

Form No. 3031

ENGINEERING, DESIGN & GEOSCIENCES GROUP, INC.
4301 HILLSBORO ROAD, SUITE 333
NASHVILLE, TENNESSEE 37215 (Lab No.)

SAMPLE IDENTIFICATION AND CUSTODY TAG

1. Source of Sample and COMPLETE Sample Identification GENESCO
WELL #2

2. County Williamson Nearest Town or City BRENTWOOD
3. Type of Sample WATER
4. Date Collected 2/21/86 Time Collected 12:10
5. Name of Sampler (Please Print) MARK HOBBS
6. Names of Others Present at Time Sample Collected
7. Field No. #9 Approximate Vol. of Sample 40ml
8. Describe field collection procedure and special handling or preservation of this sample
WATER - AS PER PROJECT PROTOCOL

9. Describe how sample conveyed or transported to the laboratory PERSONAL TRUCK

10. Requested Analyses 296587

WATER WELL#2 FIELD #9 — 0296587 — 296587

REFERRING CLIENT	DATE COLLECTED	CLIENT LAB NO.	TIME COLLECTED	RECEIVED	REPORTED
GENESCO, INC., EMP. & ENV. SAFET	02/21/86	00000	12:10	02/21/86	03/04/86

TEST	RESULT	REFERENCE LIMITS	UNITS
VOLATILE ORGANICS			
ACROLEIN	<0.10		PPM
ACRYLONITRILE	<0.10		PPM
BENZENE	<0.010		PPM
BIS(CHLOROMETHYL)ETH	<0.010		PPM
BROMOFORM	<0.010		PPM
CARBON TETRACHLORIDE	<0.010		PPM
CHLOROBENZENE	<0.010		PPM
CHLORODIBRMETHANE	<0.010		PPM
CHLOROETHANE	<0.010		PPM
2-CLETHYVINYL ETHER	<0.010		PPM
CHLOROFORM	<0.010		PPM
DI-CL-BR-METHANE	<0.010		PPM
DI-CL-DI-F-METHANE	<0.010		PPM
1-1-DICHLOROETHANE	<0.010		PPM
1,2-DICHLOROETHANE	<0.010		PPM
1,1-DI-CL-ETHYLENE	<0.010		PPM
1,2-DICHLOROPROPANE	<0.010		PPM
1,2-DI-CL-PROPYLENE	<0.010		PPM
ETHYLBENZENE	<0.010		PPM
METHYL BROMIDE	<0.010		PPM
METHYL CHLORIDE	<0.010		PPM
METHYLENE CHLORIDE	<0.010		PPM
1,1,2,2 TET CL ETHAN	<0.010		PPM
TETRACHLOROETHYLENE	<0.010		PPM
TOLUENE	<0.010		PPM
1,2-DICHLOROETHYLENE	<0.010		PPM
1,1,1-TRI-CL-ETHANE	<0.010		PPM
1,1,2-TRI-CL-ETHANE	<0.010		PPM
TRICHLOROETHYLENE	<0.010		PPM
TRI-CL-F-METHANE	<0.010		PPM
VINYL CHLORIDE	<0.010		PPM
2-BUTANONE	<0.10		PPM
HEXANE	<0.10		PPM
ACETONE	0.82		PPM
ETHYL ACETATE	<0.10		PPM

GENESCO, INC., EMP. & ENV. SAFET
RALPH E. MOSELY, DIRECTOR
430 GENESCO PARK
NASHVILLE TN 37202 4056

SPECIALIZED ASSAYS
206 12th Ave., So - Nashville, TN 37203
Phone 1-615-255-5786

[illegible]
Nashville, TN [illegible]
615 383-3588

Engineering, Design & Geosciences Group, Inc.

EDGe

March 24, 1986

Mr. Ronnie Bowers
Environmental Specialist/Chemist
Tennessee Division of Superfund
Customs House, Fourth Floor
701 Broadway
Nashville, TN 37219-5403

Re: Kennon Property
Analytical Results

Dear Mr. Bowers:

The enclosed analytical reports present the arsenic, chromium and lead results obtained from the samples we collected on February 21, 1986. Under my cover letter dated March 19, 1986, I submitted the results of the volatile organics analytical effort associated with these same samples.

If you have any questions, please advise.

Very truly yours,

ENGINEERING, DESIGN &
GEOSCIENCES GROUP, INC.

V. Wayne McCoy

V. Wayne McCoy
Project Manager

VWM/lls
Enclosure

SPECIMEN: WATER WELL #6 FIELD #1 296555

SPECIMEN I.D. NUMBER: C310505

ACCESSION NO.: 310505

REFERRING CLIENT: GENESCO, INC., EMP. & ENV. SAFET

DATE COLLECTED: 02/21/86

TIME COLLECTED: 00:00

CLIENT LAB NO.: 00000

RECEIVED: 03/20/86

REPORTED: 03/20/86

TEST	RESULT	REFERENCE LIMITS	UNITS
ARSENIC	<0.001		PPM
LEAD	<0.001		PPM
CHROMIUM, TOTAL	<0.005		PPM

GENESCO, INC., EMP. & ENV. SAFET
RALPH E. MOSELY, DIRECTOR
430 GENESCO PARK
NASHVILLE TN 37202 4056

SPECIALIZED ASSAYS
206 12th Ave., So. - Nashville, TN 37203
Phone 1-615-255-5786

Form No. 3031 REV 11/85

SPECIMEN

POND SEDIMENT FIELD #2

SPECIMEN I.D. NUMBER

0310518

ACCESSION NO

310518

REFERRING CLIENT

GENESCO, INC., EMP. & ENV. SAFET

DATE COLLECTED	TIME COLLECTED
02/21/86	00:00

CLIENT LAB NO.

00000 296599

RECEIVED

03/20/86

REPORTED

03/20/86

TEST	RESULT	REFERENCE LIMITS	UNITS
ARSENIC	3.8		PPM
LEAD	11.5		PPM
CHROMIUM, TOTAL	15.3		PPM
COMMENT	VALUES, WET WEIGHT		

GENESCO, INC., EMP. & ENV. SAFET
RALPH E. MOSELY, DIRECTOR
430 GENESCO PARK
NASHVILLE TN 37202 4056

SPECIALIZED ASSAYS
206 12th Ave., So., Nashville, TN 37203
Phone 1-615-255-5786

Form No. 3031 REV 11/85

SPECIMEN [illegible] SPECIMEN I.D. NUMBER ACCESSION NO

WATER POND FIELD #3 — 0310513 — 310513

REFERRING CLIENT	DATE COLLECTED	TIME COLLECTED	RECEIVED
	02/21/86	00:00	03/20/86
	CLIENT LAB NO.		REPORTED
GENESCO, INC., EMP. & ENV. SAFET	00000 296594		03/20/86

TEST	RESULT	REFERENCE LIMITS	UNITS
ARSENIC	<0.001		PPM
LEAD	<0.001		PPM
CHROMIUM, TOTAL	<0.005		PPM

GENESCO, INC., EMP. & ENV. SAFET
RALPH E. MOSELY, DIRECTOR
430 GENESCO PARK
NASHVILLE TN 37202 4056

SPECIALIZED ASSAYS
206 12th Ave., So. - Nashville, TN 37203
Phone 1-615-255-5786

Form No. 3031 REV 11/85

SPECIMEN	SPECIMEN I.D. NUMBER	ACCESSION NO.
WATER WELL #8 FIELD #4 296534	0310503	310503

REFERRING CLIENT	DATE COLLECTED	TIME COLLECTED	RECEIVED
	02/21/86	00:00	03/20/86
	CLIENT LAB NO.		REPORTED
GENESCO, INC., EMP. & ENV. SAFET	00000		03/20/86

TEST	RESULT	REFERENCE LIMITS	UNITS
ARSENIC	0.002		PPM
LEAD	<0.001		PPM
CHROMIUM, TOTAL	<0.005		PPM

GENESCO, INC., EMP. & ENV. SAFET
RALPH E. MOSELY, DIRECTOR
430 GENESCO PARK
NASHVILLE TN 37202 4056

SPECIALIZED ASSAYS
206 12th Ave., So. - Nashville, TN 37203
Phone 1-615-255-5786

Form No. 3031 REV. 11/85

WATER WELL #8 FIELD #5

0310515

310515

REFERRING CLIENT	DATE COLLECTED	TIME COLLECTED	RECEIVED
	02/21/86	00:00	03/20/86
	CLIENT LAB NO.		REPORTED
GENESCO, INC., EMP. & ENV. SAFET	00000	296596	03/20/86

TEST	RESULT	REFERENCE LIMITS	UNITS
ARSENIC	<0.001		PPM
LEAD	<0.001		PPM
CHROMIUM, TOTAL	<0.005		PPM

GENESCO, INC., EMP. & ENV. SAFET
RALPH E. MOSELY, DIRECTOR
430 GENESCO PARK
NASHVILLE TN 37202 4056

SPECIALIZED ASSAYS

206 12th Ave., So. - Nashville, TN 37203
Phone 1-615-255-5786

Form No. 3031 REV 11/85

WATER WELL #8 FIELD #5 | 0310515 | 310515

REFERRING CLIENT	DATE COLLECTED	TIME COLLECTED	RECEIVED
	02/21/86	00:00	03/20/86
	CLIENT LAB NO.		REPORTED
GENESCO, INC., EMP. & ENV. SAFET	00000	296596	03/20/86

TEST	RESULT	REFERENCE LIMITS	UNITS
ARSENIC	<0.001		PPM
LEAD	<0.001		PPM
CHROMIUM, TOTAL	<0.005		PPM

GENESCO, INC., EMP. & ENV. SAFET
RALPH E. MOSELY, DIRECTOR
430 GENESCO PARK
NASHVILLE TN 37202 4056

SPECIALIZED ASSAYS
206 12th Ave., So. - Nashville, TN 37203
Phone 1-615-255-5786

Form No. 3031 REV 11/85

DITCH HACKETT - PROPERTY FIELD #6

SPECIMEN ID NUMBER		
0310517		310517

REFERRING CLIENT

GENESCO, INC., EMP. & ENV. SAFET

DATE COLLECTED	TIME COLLECTED	RECEIVED
02/21/86	00:00	03/20/86

CLIENT LAB NO. 00000 294598

REPORTED 03/20/86

TEST	RESULT	REFERENCE LIMITS	UNITS
ARSENIC	4.6		PPM
LEAD	14.9		PPM
CHROMIUM, TOTAL	22.3		PPM
COMMENT	VALUES, WET WEIGHT		

GENESCO, INC., EMP. & ENV. SAFET
RALPH E. MOSELY, DIRECTOR
430 GENESCO PARK
NASHVILLE TN 37202 4056

SPECIALIZED ASSAYS

206 12th Ave., So. - Nashville, TN 37203
Phone 1-615-255-5786

Form No. 3031 REV 11/8*

SPECIMEN: WATER WELL #5 FIELD #7 296509

SPECIMEN ID NUMBER: 0310508

ACCESSION NO.: 310508

REFERRING CLIENT: GENESCO, INC., EMP. & ENV. SAFET

DATE COLLECTED: 02/21/86

TIME COLLECTED: 00:00

CLIENT LAB NO.: 00000

RECEIVED: 03/20/86

REPORTED: 03/20/86

TEST	RESULT	REFERENCE LIMITS	UNITS
ARSENIC	<0.001		PPM
LEAD	<0.001		PPM
CHROMIUM, TOTAL	<0.005		PPM

GENESCO, INC., EMP. & ENV. SAFET
RALPH E. MOSELY, DIRECTOR
430 GENESCO PARK
NASHVILLE TN 37202

4056

SPECIALIZED ASSAYS
206 12th Ave., So. - Nashville, TN 37203
Phone 1-615-255-5786

WATER WELL #4 FIELD #8 296538

SPECIMEN I.D. NUMBER: 0010507

ACCESSION NO: 210507

REFERRING CLIENT

GENESCO, INC., EMP. & ENV. SAFET

DATE COLLECTED	TIME COLLECTED	CLIENT LAB NO.
02/21/86	00:00	00000

RECEIVED: 03/20/8

REPORTED: 03/20/8

TEST	RESULT	REFERENCE LIMITS	UNITS
ARSENIC	<0.001		PPM
LEAD	<0.001		PPM
CHROMIUM, TOTAL	<0.005		PPM

GENESCO, INC., EMP. & ENV. SAFET
RALPH E. MOSELY, DIRECTOR
430 GENESCO PARK
NASHVILLE TN 37202 4056

SPECIALIZED ASSAYS
206 12th Ave., So. - Nashville, TN 3720
Phone 1-615-255-5786

Form No. 3031 REV 11/85

SPECIMEN

WATER WELL #3 FIELD #8 296590

SPECIMEN ID NUMBER: 0310509

ACCESSION: 310509

REFERRING CLIENT	DATE COLLECTED	TIME COLLECTED	RECEIVED
GENESCO, INC., EMP. & ENV. SAFET	02/21/86	00:00	03/20/86
	CLIENT LAB NO. 00000		REPORTED 03/20/86

TEST	RESULT	REFERENCE LIMITS	UNITS
ARSENIC	<0.001		PPM
LEAD	<0.001		PPM
CHROMIUM, TOTAL	<0.005		PPM

GENESCO, INC., EMP. & ENV. SAFET
RALPH E. MOSELY, DIRECTOR
430 GENESCO PARK
NASHVILLE TN 37202 4056

SPECIALIZED ASSAYS

206 12th Ave., So., Nashville, TN 37203
Phone 1-615-255-5786

Form No. 3031 REV 11/85

WATER WELL #2 FIELD #9 296587	0310506	310506

REFERRING CLIENT	DATE COLLECTED	TIME COLLECTED	RECEIVED
	02/21/86	00:00	03/20/86
	CLIENT LAB NO.		REPORTED
GENESCO, INC., EMP. & ENV. SAFET	00000		03/20/86

TEST	RESULT	REFERENCE LIMITS	UNITS
ARSENIC	0.003		PPM
LEAD	<0.001		PPM
CHROMIUM, TOTAL	<0.005		PPM

GENESCO, INC., EMP. & ENV. SAFET
RALPH E. MOSELY, DIRECTOR
430 GENESCO PARK
NASHVILLE TN 37202

4056

SPECIALIZED ASSAYS
206 12th Ave., So. - Nashville, TN 37203
Phone 1-615-255-5786

Form No. 3031 REV 11/85

SPECIMEN ID	SPECIMEN NUMBER	ACCESSION NO.
WATER WELL #1 FIELD #10	0310511	310511

REFERRING CLIENT	DATE COLLECTED	TIME COLLECTED	RECEIVED
GENESCO, INC., EMP. & ENV. SAFET	02/21/86	00:00	03/20/86
	CLIENT LAB NO. 00000 296592		REPORTED 03/20/86

TEST	RESULT	REFERENCE LIMITS	UNITS
ARSENIC	<0.001		PPM
LEAD	<0.001		PPM
CHROMIUM, TOTAL	<0.005		PPM

GENESCO, INC., EMP. & ENV. SAFET
RALPH E. MOSELY, DIRECTOR
430 GENESCO PARK
NASHVILLE TN 37202 4056

SPECIALIZED ASSAYS

206 12th Ave., So. - Nashville, TN 37203
Phone 1-615-255-5786

Form No. 3031 REV 11/85

SPECIMEN 296597

WATER WELL #9 FIELD #11

SPECIMEN ID NUMBER

0310516

ACCESSION NO.

310516

REFERRING CLIENT

GENESCO, INC., EMP. & ENV. SAFET

DATE COLLECTED	TIME COLLECTED	CLIENT LAB NO.
02/21/86	00:00	00000 296597

RECEIVED 03/20/86

REPORTED 03/20/86

TEST	RESULT	REFERENCE LIMITS	UNITS
ARSENIC	<0.001		PPM
LEAD	<0.001		PPM
CHROMIUM, TOTAL	<0.005		PPM

GENESCO, INC., EMP. & ENV. SAFET
RALPH E. MOSELY, DIRECTOR
430 GENESCO PARK
NASHVILLE TN 37202 4056

SPECIALIZED ASSAYS

206 12th Ave., So. - Nashville, TN 37203
Phone 1-615-255-5786

Form No. 3031 REV 11/85

SPECIMEN

WATER WELL #7 DEEP FIELD #12

SPECIMEN I.D. NUMBER	ACCESSION N
0310510	310510

REFERRING CLIENT

GENESCO, INC., EMP. & ENV. SAFET

DATE COLLECTED	TIME COLLECTED	RECEIVED
02/21/86	00:00	03/20/86

CLIENT LAB NO. 00000 296191

REPORTED 03/20/86

TEST	RESULT	REFERENCE LIMITS	UNITS
ARSENIC	<0.001		PPM
LEAD	<0.001		PPM
CHROMIUM, TOTAL	<0.005		PPM

GENESCO, INC., EMP. & ENV. SAFET
RALPH E. MOSELY, DIRECTOR
430 GENESCO PARK
NASHVILLE TN 37202 4056

SPECIALIZED ASSAYS
206 12th Ave., So. - Nashville, TN 37203
Phone 1-615-255-5786

Form No. 3031 REV 11/85

WATER WELL #7 SHALLOW (296585 | 0310504 | 310504
FIELD #13

REFERRING CLIENT

GENESCO, INC., EMP. & ENV. SAFET

DATE COLLECTED	TIME COLLECTED	RECEIVED	REPORTED
02/21/86	00:00	03/20/86	03/20/86

CLIENT LAB NO. 00000

TEST	RESULT	REFERENCE LIMITS	UNITS
ARSENIC	<0.001		PPM
LEAD	<0.001		PPM
CHROMIUM, TOTAL	<0.005		PPM

GENESCO, INC., EMP. & ENV. SAFET
RALPH E. MOSELY, DIRECTOR
430 GENESCO PARK
NASHVILLE TN 37202 4056

SPECIALIZED ASSAYS

206 12th Ave., So. - Nashville, TN 37203
Phone 1-615-255-5786

Form No. 3031 REV 11/85

WATER WELL #7 SHALLOW FIELD #14 — 0310512 — 310512

REFERRING CLIENT	DATE COLLECTED	TIME COLLECTED	RECEIVED
GENESCO, INC., EMP. & ENV. SAFET	02/21/86	00:00	03/20/86
	CLIENT LAB NO. 00000	296593	REPORTED 03/20/86

TEST	RESULT	REFERENCE LIMITS	UNITS
ARSENIC	<0.001		PPM
LEAD	<0.001		PPM
CHROMIUM, TOTAL	<0.005		PPM

GENESCO, INC., EMP. & ENV. SAFET
RALPH E. MOSELY, DIRECTOR
430 GENESCO PARK
NASHVILLE TN 37202

4056

SPECIALIZED ASSAYS
206 12th Ave., So. - Nashville, TN 37203
Phone 1-615-255-5786

KENNON SITE

Site No. TND 981473575

Reference No. 9 HRS Manual

KENNON SITE

Site No. TND 981473575

Reference No. 10

Employee and Environmental Safety

May 21, 1985

Mr. Tom Tiesler
Director
Division of Solid Waste Management
Department of Health and Environment
4th Floor, Custom House
701 Broadway
Nashville, Tennessee 37219-5403

Dear Tom:

The purpose of this letter is to advise you of a chemical waste site once used by a division of Genesco Inc. (the "Company" or "Genesco") and to solicit the assistance and approval of the Tennessee Department of Health and Environment (the "Department") with respect to certain actions the Company proposes to take.

The Company is a Tennessee corporation with its executive offices located at Genesco Park, Nashville, Tennessee. Genesco operates in two major industry segments - footwear and men's apparel - and employs approximately 3,900 persons in the State of Tennessee. General Adhesives, formerly known as General Adhesives and Chemical Company, is a division of Genesco's footwear segment which operates a manufacturing plant at 6100 Centennial Boulevard in Nashville, Tennessee. General Adhesives manufactures and sells specialty industrial and consumer products, which include adhesives, sealants and coatings utilizing solvent based, thermoplastic and water based technologies. It is a generator (EPA I.D. Number TND 001981240) and transporter (EPA I.D. Number TND 001367549) of hazardous waste currently disposed of at either the Stauffer Chemical Company, Mt. Pleasant, Tennessee or Chemical Waste Management Company, Emelle, Alabama.

It has recently been brought to the attention of Genesco's corporate management that for a limited period of time during the summer and/or fall of 1978, approximately eight hundred 55-gallon barrels of waste material from General Adhesives were disposed of in a rural area in Williamson County, Tennessee. Preliminary indications are that some of the waste

Genesco Inc.
Genesco Park
Nashville TN 37202

615 367 8417

(approximately 50-80 barrels) was buried in the barrels and the remainder was poured from barrels into phosphate pits or earthen trenches. The disposal site is an approximately two acre section of a 146 acre farm owned by Emmett N. Kennon located in the fifteenth civil district of Williamson County, Tennessee on the east side of Wilson Pike between Moores Lane and Split Log Road (the "Kennon Property"). Enclosed is a copy of a map showing the location of the Kennon Property and the approximate location of the disposal site.

The exact amount and contents of the waste material are unknown; however, it is believed that it contained water based adhesives and may have contained acetone; ethyl acetate; hexane; methylene chloride; methyl ethyl ketone; rubber solvent; toluene; 1,1,1-trichloroethane; trichloroethylene and organic fillers. A large portion of the organic solvents that was poured into the phosphate pits and earthen trenches may have evaporated, but it is believed that approximately 50-80 barrels were buried on the Kennon Property and may still contain waste material.

Having been informed of the reported waste disposal, corporate management immediately instructed its counsel to undertake an investigation of this matter. Based on the preliminary findings of that investigation, the Company developed the general plan of action outlined herein and arranged for a meeting with you. The plan has been developed in consultation with Mr. V. Wayne McCoy of Resource Consultants Inc. of Brentwood, Tennessee. Implementation of the plan calls for the employment of hydrogeologists, soil geologists and other experts, possibly including a waste disposal firm.

The details of the plan and the retention of experts and others to carry out the plan are subject to the Department's approval, and representatives of the Department are invited to observe or participate in all aspects of its implementation.

The first phase of the plan, as proposed by Genesco, is designed, through hydrogeological study, to:

1. Identify more specifically the area and volume of the land area on the Kennon Property that has been used for disposal of waste generated by General Adhesives;

2. Determine the extent to which chemical waste generated by General Adhesives is still present in the soil in and around the disposal site;

3. Determine the existence and direction of possible surface water flows and subsurface aquifers in and around the disposal site;

4. Determine if any of the chemicals generated by General Adhesives is present in any surface water or groundwater in and around the disposal site; and

5. Develop a report regarding the environmental impact and preliminary recommendations for any corrective action indicated.

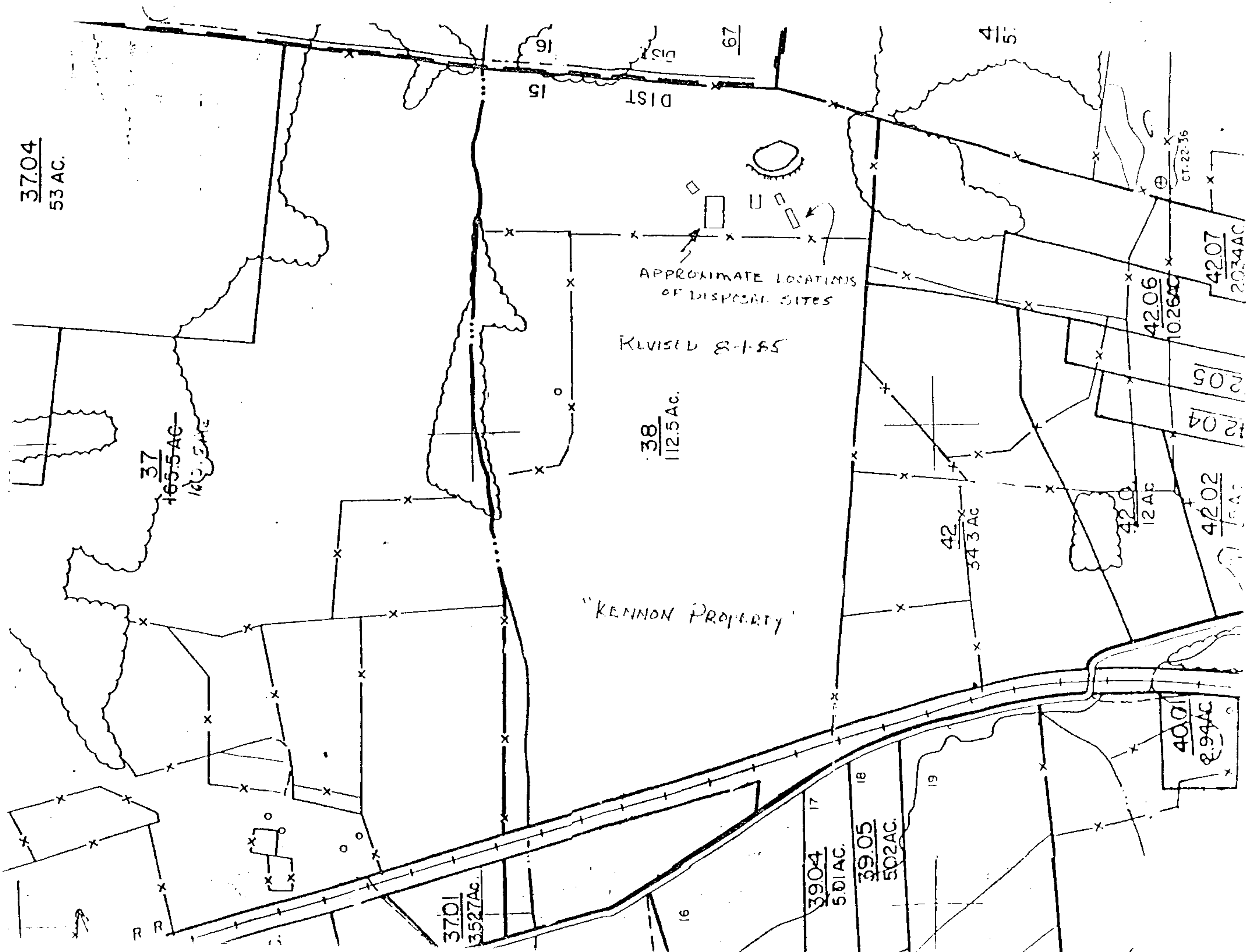
Subject to Department approval, Genesco proposes to retain the services of Resource Consultants and Geologic Associates Inc. of Franklin, Tennessee, as soon as possible to perform the initial surveys, tests and analyses to define the nature and extent of any environmental problem that may exist on the Kennon Property and surrounding area.

Genesco will meet with appropriate Department representatives to review the results of the surveys, tests and analyses and to more fully develop any preliminary plan for any remedial action.

If waste removal and site cleanup is required, the Company will retain the services of a Department-approved firm to excavate, exhume, analyze, transport and dispose of contaminated material. Any cleanup and removal required will be subject to necessary pre-closure site tests and analyses conducted by Geologic Associates Inc. or other approved firms.

Sincerely,

Ralph Mosely
Director



APPROXIMATE LOCATIONS OF DISPOSAL SITES
REVISED 8-1-85
"KENNON PROPERTY"
DIST 15
67
37.04
53 AC.
37
165.5 AC
38
112.5 Ac.
42
34.3 Ac
42.01
12 Ac
42.02
42.06
10.26AC
42.07
20.34AC
40.01
8.94AC
39.04
5.01AC.
39.05
5.02AC.
37.01
35.27Ac.

KENNON SITE

Site No. TND 981473575

Reference No. 11

FEB 21 1986

City of Brentwood

P.O. BOX 788, 116 WILSON PIKE
BRENTWOOD, TENNESSEE 37027
TELEPHONE (615) ~~373-3011~~ 371-0060

T. MACK BLACKBURN
MAYOR
PHILLIP HARDEMAN
VICE MAYOR
FRANK W. CLIFTON, JR.
CITY MANAGER

COMMISSIONERS
T. MACK BLACKBURN
PHILLIP HARDEMAN
HAROLD J. McMURTRY
BRIAN J. SWEENEY
RICHARD L. VAUGHN

February 19, 1986

Mr. Donald Shackleford
Tennessee Department of Health and Environment
701 Broadway, 4th floor Customs House
Nashville, TN 37219-5403

Dear Mr. Shackleford:

Based on our previous conversations and our meeting with Dr. Bruner and Mayor Blackburn, the following cost estimates are provided:

Alternative 1

6" Ductile Iron Pipe from Alamo Drive to the intersection of Split Log Road and Wilson Pike and east on Split Log Road to the existing city limits and south on Wilson Pike to the existing city limits.

17,000	L.F. of 6" DI Pipe at $14/LF	$ 238,000
37	6" Gate Valves at $400 each	14,800
24	Fire Hydrants at $1,100 each	26,400
	Railroad Crossing (Tunnelled)	20,000
	Pavement Repairs 300 LF at $12/LF	3,600
	Crushed Stone 8,000 LF at $1/LF	8,000
	Meters/Boxes 25 at $200 each	5,000
	Service Lines 625 LF at $4/LF	2,500
	Engineering (6%)	19,100
	Inspection (4%)	12,700
	Contingency (10%)	31,400
	Total Estimated Cost	$ 382,000

Alternative 2

Instead of 6" Ductile Iron Pipe use Class 200 PVC Pipe at an estimated cost of $7/LF instead of $14/LF for Ductile Iron. All other factors remain the same, a savings of $119,000 is realized. Total revised project cost will be $263,000.

Alternative 3

Replacing the proposed minimum 6" Ductile Iron Pipe with a 12" Ductile Iron Pipe to provide adequate water supply for future growth. A revised cost estimate is as follows:

16,000 L.F. of 12" Ductile Iron Pipe at $28/LF	$ 448,000
500 L.F. of 6" Ductile Iron Pipe at $14/LF	7,000
12" Gate Valves--13 at $900 each	11.700
6" Gate Valves--24 at $400 each	9,600
Fire Hydrants--24 at $1,100 each	26,400
Railroad Crossing (Tunnelled)	20,000
Pavement Repairs--300 L.F. at $12/LF	3,600
Crushed Stone--8,000 L.F. at $1/LF	8,000
Meters/Boxes--25 at $200 each	5,000
Service Lines 625 L.F. at $4/LF	2,500
Engineering (6%)	33,400
Inspection (4%)	22,300
Contingency (10%)	55,700
Total Estimated Cost	$ 668,000

Alternative 4

Instead of 12" Ductile Iron Pipe Use Class 200 PVC Pipe at an estimated cost of $14/LF instead of $28/LF for Ductile Iron. All other factors remain consistent, a savings of $227,500 is realized. Total revised project cost will be $440,500.

In addition to one of the above options the City will be required to bring a second feeder line into the new proposed line. This second feeder will come down Wilson Pike from Concord Road to the new connection off of Alamo Drive. The approximate length of this additional line is estimated to be 4,500 L.F. This second feeder line will cost additionally above alternatives 1-4 (depending on the option selected) as follows:

- 6" Ductile Iron Pipe	$ 97,000
- 6" Class 200 PVC	64,800
- 12" Ductile Iron Pipe	180,000
- 12" Class 200 PVC	115,600

Summarizing

To effectively get a reliable source of public water to area in question would cost a minimum of $327,800 and under the most desirable conditions, using 12" PVC Class 200 Pipe, $556,500. These estimates would be subject to actual bids.

If Class 200 PVC Pipe is allowable under these conditions, I feel the City would want to install the 12" line as a minimum, understanding that the City would have to pick up the cost difference between the 12" and 6" pipe and the second feeder to the area in question.

Based on the above calculations, I feel a reasonable estimate of cost sharing on this project would be:

Local Sources	$ 293,100
State and/or Pollution Offenders	263,000
Total Estimated Cost	$ 556,100

Please recognize that these figures include no cost for right-of-way acquisition or condemnation expenses.

This information is being provided the Brentwood City Commission for their review and knowledge. We will await further contact from your office with regards to proceeding with any additional action.

Respectfully,

Frank W. Clifton, Jr.
City Manager

cc: Mayor and City Commission
City Attorney Robert H. Jennings, Jr.

FWC:NS

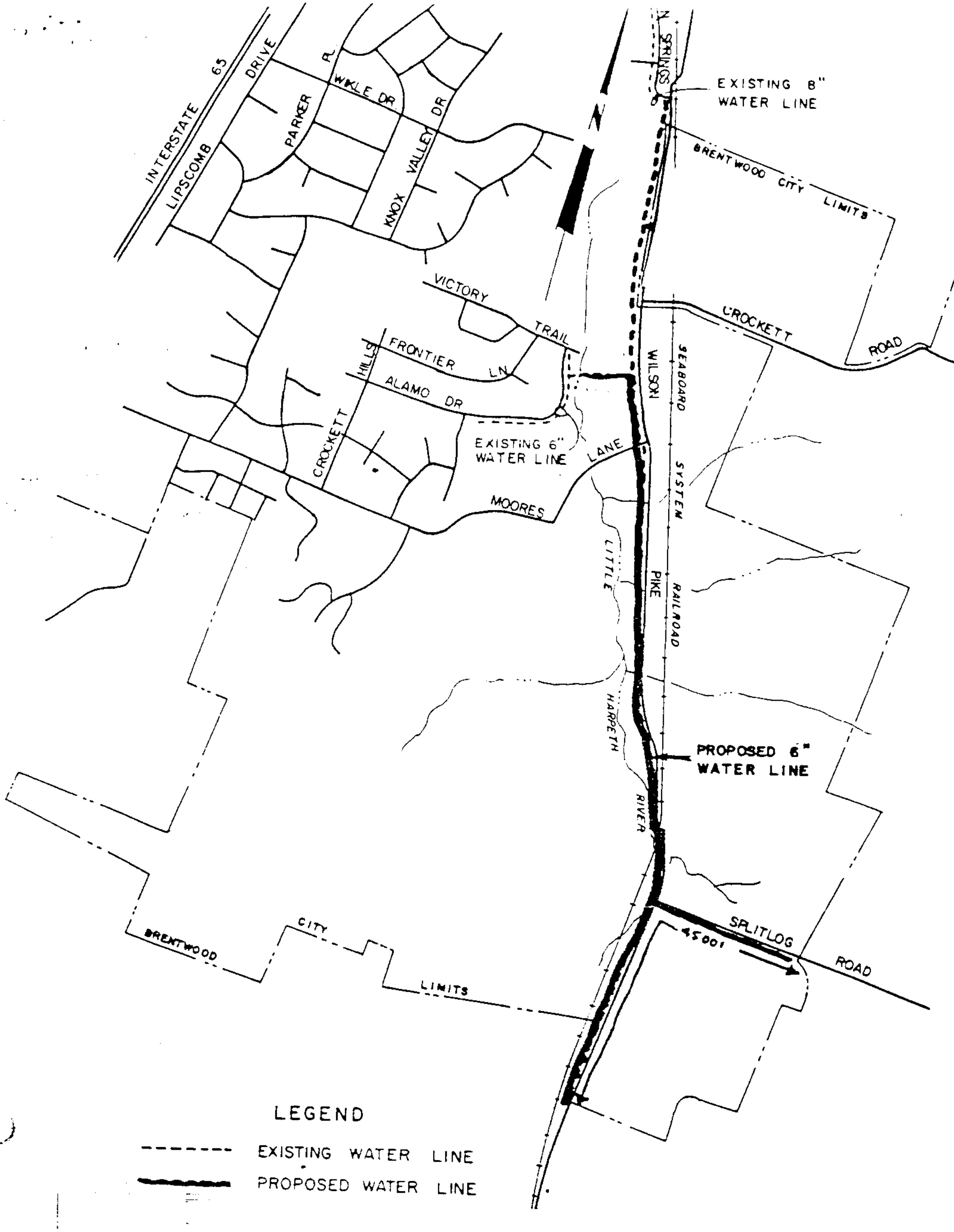

INTERSTATE 65
LIPSCOMB DRIVE
PARKER PL
WIKLE DR
KNOX VALLEY DR
N
EXISTING 8" WATER LINE
BRENTWOOD CITY LIMITS
VICTORY TRAIL
FRONTIER LN
CROCKETT HILLS
ALAMO DR
CROCKETT ROAD
WILSON PIKE
SEABOARD SYSTEM RAILROAD
EXISTING 6" WATER LINE
MOORES LANE
LITTLE HARPETH RIVER
PROPOSED 6" WATER LINE
SPLITLOG ROAD
BRENTWOOD CITY LIMITS
LEGEND
EXISTING WATER LINE
PROPOSED WATER LINE

EXHIBIT I

KENNON SITE

Site No. TND 981473575

Reference No. 12

GENESCO

Employee and Environmental Safety

Mr. Frank W. Clifton, Jr.
City Manager
City of Brentwood
P.O. Box 788
Brentwood, TN 37027

RE: SERVICE CONNECTIONS

July 28, 1986

Dear Frank:

As we discussed with you and with John Grissom, an estimate of the cost of each service connection prior to installation would probably be the best method of insuring we are in agreement of the costs involved.

To facilitate the cost estimates, we asked Bill Griggs of Barge, Waggoner, Sumner and Cannon, to meet with John Grissom, Manager of Water Service of the City of Brentwood, to estimate distances and size of service line needed, etc. Attached is his report.

Bill's basic assumption on sizes, etc. was to assume that your storage tank would be 50% full, a residual pressure of 20 psi would be maintained, and that 10 GPM would be adequate for each residence.

There are questions we have involving three service connections that we would like to ask either John Grissom or the contractor to clarify:

It would appear to be much more cost effective to combine the service lines to the three residences on the Sharp property, and to extend the service connection to Mr. Reese Smith's house back down the hill to connect to Woodrow Shaw's residence (Mr. Smith's tenant). If a common service line is not applicable, we would still prefer a common trench.

If you could have someone clarify this before we proceed further, it would expedite the cost estimating process.

As quickly as the cost estimates are submitted, we will have a prompt review, so we could proceed without undue delay.

Genesco Inc.
Genesco Park
Nashville TN 37202

615 367 8417

Mr. Frank W. Clifton
July 28, 1986
Page two

Thank you for your assistance.

Sincerely,

Ralph E. Mosely
Director
Employee and Environmental Safety

RM/bb

cc: Mr. John Grissom - City of Brentwood
Mr. Bill Griggs - Barge, Waggoner, Sumner & Cannon
Mr. Don Shackelford - Tennessee Dept. of Health & Environment

Jam 4/13 C.

1 MILE RADIUS
– Charles Powers, Superintend
Field Coord.

RECOMMENDED SERVICE LINE SIZES
BRENTWOOD WATER LINE
FILE 9835

[redacted]	Address	Parcel	Elev.	Estimated Dist. from Road, Ft.	Service Line Size, In.	Available GPM[3]	Remarks
[redacted]	[redacted]	54-39.15	730	200	3/4	13	
[redacted]	[redacted]	54-39.14	720	400	3/4	10	
[redacted]	[redacted]	54-39.13	720	200	3/4	14	
[redacted]	[redacted]	54-39.11	725	175	3/4	14	
[redacted]	[redacted]	54-39.10	725	175	3/4	14	
[redacted]	[redacted]		730	150	3/4	15	
[redacted]	[redacted]		730	300	3/4	10	
[redacted]	[redacted]		750	600	1	14	1
[redacted]	[redacted]		750	600	1	14	
[redacted]	[redacted]	54-39.04	760	600	1	13	
[redacted]	[redacted]	54-39.05	770	600	1	12	
[redacted]	[redacted]	54-42.01	760	200	3/4	11	
[redacted]	[redacted]	54-42.02	760	500	1	15	
[redacted]	[redacted]	54-40	760	600	1	14	
[redacted]	[redacted]	54-40	820	2,000	2	25	
[redacted]	[redacted]	54-40	780	1,800	1-1/2	18	
[redacted]	[redacted]	61-5	830	1,500	2	25	

[1] John Grissom was unsure of exact location.
[3] Includes head loss through meter, minimal loss through 12" main, tank 50% full, and 20 psi residual pressure.

Name	Address	Parcel	Elev.	Estimated Dist. from Road, Ft.	Service Line Size, In.	Available GPM[3]	Remarks
[redacted]	[redacted]	61-5	830	1,700	2	23	
[redacted]	[redacted]	61-5	810	1,200	1-1/2	17	2
[redacted]	[redacted]		770	250	1	20	
[redacted]	[redacted]		780	250	1	19	
[redacted]	[redacted]		765	600	1	13	
[redacted]	[redacted]		760	200	3/4	11	
[redacted]	[redacted]		790	400	1	13	
[redacted]	[redacted]		785	400	1	14	
[redacted]	[redacted]		790	700	1	10	
[redacted]	[redacted]		800	150	3/4	10	
[redacted]	[redacted]		825	600	1-1/2	20	
[redacted]	[redacted]		765	500[4]	1	14	
[redacted]	[redacted]		790	400	1	13	
[redacted]	[redacted]		720	600	1	16	

Summary - 3/4" - 2,150 LF
- 1" - 7,600 LF
- 1-1/2" - 3,600 LF
- 2" - 5,200 LF

[2] Served from Split Log Road.
[3] Includes head loss through meter, minimal loss through 12" main, tank 50% full, and 20 psi residual pressure.
[4] No existing house, assumed distance.

KENNON SITE

Site No. TND 981473575

Reference No. 13

TENNESSEE DEPARTMENT OF HEALTH AND ENVIRONMENT

OFFICE CORRESPONDENCE

FROM	TO	DATE

DATE: March 6, 1987

TO: SIU Files - Kennon Site (Genesco)

FROM: Thomas A. Moss, DSF TAM

SUBJECT: Details of Conversation - pertinent site information.

On March 6, 1987 at 7:30 a.m., Thomas A. Moss of the Superfund Division contacted Ronnie L. Bowers of the Superfund Division regarding the Kennon Site (Genesco) sample results, water use.

Details of conversation:

The first set of results at the Mallory Well and Fletcher Well are suspect. At the first sampling from the tap at the Mallory Well, it was not known that Mallory had used a rubber hose instead of PVC from the well to the tap. The second time, the well was bailed and diethyl phthalate did not show up.

Hackett Spring is the nearest drinking water source to the site. The Little Harpeth is very shallow except for small pools. Mr. Bowers has seen fish in the pools, but has never seen anyone fishing in the 1 1/2 years he has been involved with the site. Glass Creek is intermittent.

FROM	DATE
TO	

PH-0001
SR 3/77

KENNON SITE

Site No. TND 981473575

Reference No. 14& 15

OVERSIZED

DOCUMENT

KENNON SITE

Site No. TND 981473575

Reference No. 1 C

FROM	TO	DATE

TENNESSEE DEPARTMENT OF HEALTH AND ENVIRONMENT

OFFICE CORRESPONDENCE

DATE: April 24, 1987

TO: Kennon Site (Genesco) File

FROM: Thomas A. Moss, DSF

SUBJECT: Ground Water Use Survey/House Count For 3 Mile Radius

On April 22, 1987 Gordon S. Caruthers-DSF and Thomas A. Moss-DSF visited utilities covering the area within the three mile radius of the site. The area is covered by Brentwood, Nolensville, Mallory Valley, Franklin, and Milcrofton. We spoke with Larry Moore of the Brentwood Utilities; Jim Dunn of Mallory Valley Utilities; and Sara Strasser of Nolensville Utilities and were shown where their lines run and placed the information on a 3 mile radius map. We then drove the roads within the 3 mile radius, counting those houses without water meters, excluding houses within the one mile radius. We did not count houses within one mile radius - houses within one mile (31 houses) were run water from Brentwood as a part of remedial action paid for by Genesco. The house count beyond the one mile radius within three miles was 77. This would give a total of 108 houses within three miles for population of 410, using 3.8 people per house.

TAM/ib

Thomas A. Moss

FROM	DATE

TO

KENNON SITE

Site No. TND 981473575

Reference No. 17

TENNESSEE DEPARTMENT OF HEALTH AND ENVIRONMENT

OFFICE CORRESPONDENCE

FROM	TO	DATE

DATE: March 10, 1987

TO: SIU Files - Kennon Site (Genesco)

FROM: Thomas A. Moss, DSF TAM

SUBJECT: Details of Telecon - pertinent site information.

On March 10, 1987 at 7:40 a.m., Thomas A. Moss of the Superfund Division contacted Robin Bowie of the Williamson County Soil Conservation Service by telephone regarding surface and ground water use for irrigation in the area of the Genesco site.

Details of conversation:

Mr. Bowie is familiar with the area where the Genesco site is located. Mr. Bowie stated that to his knowledge, there is no irrigation by wells or streams within 3 miles of the site.
Mr. Bowie is sure there is some fishing done by kids in the Little Harpeth River between Split Log Road and Concord Road.

TAM/ib

FROM	DATE

TO

PH-0001
SR 3/77

KENNON SITE

Site No. TND 981473575

Reference No. 18

TENNESSEE WILDLIFE RESOURCES AGENCY

ELLINGTON AGRICULTURAL CENTER
P. O. BOX 40747
NASHVILLE, TENNESSEE 37204

December 19, 1985

Mr. Gordon Caruthers
Solid Waste Management Division
Department of Health & Environment
701 Broadway
Nashville, TN 37219

Dear Gordon:

In response to your call of December 19, I am happy to enclose descriptions of critical wildlife habitat of Tennessee, as designated by the U.S. Fish and Wildlife Service.

Please advise if I can be of further assistance.

Sincerely,

TENNESSEE WILDLIFE RESOURCES AGENCY

Bob

Robert M. Hatcher, Coordinator
Nongame/Endangered Species

RMH/ch
enc.

Proposed Rules (Region 4)

(E = Endangered; T = Threatened; CH = Critical Habitat: S/A = Classified under similarity of appearance provision)

SPECIES	LOCATION	DETERMINATION	FEDERAL REGISTER
Trispot Darter (*Etheostoma trisella*)	Conasauga River, Coahulla Creek, TN, GA	E, CH	07/13/84
Prickly-ash (*Zanthoxylum thomasianum*)	PR, VI	E	02/11/85
Dismal Swamp Southeastern Shrew (*Sorex longirostris fisheri*)	VA and NC	T	07/16/85
Short's Goldenrod (*Solidago shortii*)	Robertson, Nicholas, Fleming Co., KY	E	10/11/84
Key Largo Cotton Mouse and Woodrat	N. Key Largo, FL	CH	02/09/84, 08/31/84, 11/21/84
Prickly Apple Cactus (*Cereus eriophorus* var. *fragrans*)	St. Lucie Co., FL	E	03/06/85
Longspurred Balm (*Dicerandra cornutissima*)	Marion Co., FL	E	
Scrub Balm (*Dicerandra frutescens*)	Highlands Co., FL	E	03/28/85
Canby's Dropwort (*Oxypolis canbyi*)	Burke, Lee, Sumter Co., GA; Scotland Co., NC; Bamberg, Colleton Co., SC; MD	E	03/28/85
Florida Golden Aster (*Chrysopsis floridana*)	Hillsborough and Pinellas Counties, FL	E	08/05/85
Pondberry (*Lindera melissifolia*)	AR: Clay Co. MS: Sharkey Co. MO: Ripley Co. NC: Bladen Co. SC: Berkeley Co. GA: Wheeler Co.	E	08/13/85

ENDANGERED AND THREATENED

WILDLIFE AND PLANTS

JULY 20, 1984

50 CFR 17.11 and 17.12

Department of the Interior
U.S. Fish and Wildlife Service

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

Republication of the Lists of Endangered and Threatened Species

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: The Service republishes the U.S. Lists of Endangered and Threatened Wildlife and Plants. The last complete republication was May 20, 1980 (45 FR 33768–33781). Minor changes, principally in names of the species, are incorporated in this republication.

DATES: This rule is effective on July 27, 1983.

ADDRESSES: Comments concerning this republication should be sent to the Associate Director—Federal Assistance, Fish and Wildlife Service, U.S. Department of the Interior, Washington, D.C. 20240.

FOR FURTHER INFORMATION CONTACT: Mr. John L. Spinks, Jr., Chief, Office of Endangered Species, U.S. Fish and Wildlife Service, Washington, D.C. 20240 (703/235–2771).

SUPPLEMENTARY INFORMATION:

Background

These lists contain the names of species officially listed as Endangered or Threatened under the Endangered Species Act of 1973, as amended (16 U.S.C. 1531, *et seq.*) through the date of this republication. The listing regulations promulgated under that Act are found at 50 CFR Part 424 and are under revision to conform to the Endangered Species Act Amendments of 1982 (Pub. L. 97–304, 96 Stat. 1411). The previous compilation of these lists appears in the 1982 edition of the Code of Federal Regulations for Title 50, which was actually issued in early 1983. That compilation was effective through October 1, 1982. This republication of §§ 17.11 and 17.12 incorporates all subsequent changes (i.e., additions, reclassifications, and deletions) published as Final Rules in the Federal Register.

In addition to those changes, the Service has made extensive revisions on some of the entries. Most of these changes reflect current nomenclature. The entries for the common and scientific names of many plants and animals are amended by adding synonyms, indicated by the use of (=). Synonyms aid law enforcement officials, importers, exporters, and many others who routinely use these names by identifying alternative names that may appear in documents and other references.

The species named in these lists were placed there either by the U.S. Fish and Wildlife Service, Department of the Interior, or jointly by that Service and the National Marine Fisheries Service, National Oceanic and Atmospheric Administration, Department of Commerce. References to "Services" in the text of §§ 17.11 and 17.12 refer to those two agencies. The Fish and Wildlife Service maintains the lists through republications and other administrative practices.

No entry to these lists has been added, deleted, or significantly altered by this republication. Such actions must be published as separate documents in the Federal Register.

Minor changes are made in §§ 17.11(d) and 17.12(d) to clarify that some of the data in these lists are provided for the information of the reader and may now be changed without public notice when the annual (October 1) compilation of Title 50 is being done. This procedure will annually save the government several thousand dollars in publication costs in the daily Federal Register by permitting such changes of a nonregulatory nature.

The Service finds for good cause that this document shall be effective upon publication and that notice and public comment are unnecessary. This action is merely a republication of existing, and previously published, requirements. By bringing earlier lists up to date, it will provide more timely guidance to the public. Readers are requested to advise the Service of any errors or omissions, particularly with regard to historic ranges and alternative names in these lists.

Authors

This document was compiled by the staff of the Office of Endangered Species, U.S. Fish and Wildlife Service, Washington, D.C. 20240 (703/235–1975).

List of Subjects in 50 CFR Part 17

Endangered and threatened species.

Dated: July 21, 1983.

J. Craig Potter,

Acting Assistant Secretary for Fish and Wildlife and Parks.

Regulations Promulgation

PART 17—[AMENDED]

Accordingly, the Service amends Part 17 of Title 50 of the Code of Federal Regulations as follows:

1. The authority citation for Part 17 reads as follows:

Authority: Pub. L. 93–205, 87 Stat. 884, Pub. L. 95–632, 92 Stat. 3751; Pub. L. 96–159, 93 Stat. 1241; and Pub. L. 97–304, 96 Stat. 1411 (16 U.S.C. 1531, *et seq.*).

2. Revise Subpart B of 50 CFR Part 17 to read as follows:

Subpart B—Lists

§ 17.11 Endangered and threatened wildlife.

(a) The list in this section contains the names of all species of wildlife which have been determined by the Services to be Endangered or Threatened. It also contains the names of species of wildlife treated as Endangered or Threatened because they are sufficiently similar in appearance to Endangered or Threatened species (see § 17.50 *et seq.*).

(b) The columns entitled "Common Name," "Scientific Name," and "Vertebrate Population Where Endangered or Threatened" define the species of wildlife within the meaning of the Act. Thus, differently classified geographic populations of the same vertebrate subspecies or species shall be identified by their differing geographic boundaries, even though the other two columns are identical. The term "Entire" means that all populations throughout the present range of a vertebrate species are listed. Although common names are included, they cannot be relied upon for identification of any specimen, since they may vary greatly in local usage. The Services shall use the most recently accepted scientific name. In cases in which confusion might arise, a synonym(s) will be provided in parentheses. The Services shall rely to the extent practicable on the *International Code of Zoological Nomenclature.*

(c) In the "Status" column the following symbols are used: "E" for Endangered, "T" for Threatened, and "E [or T] (S/A)" for similarity of appearance species.

(d) The other data in the list are nonregulatory in nature and are provided for the information of the reader. In the annual revision and compilation of this Title, the following information may be amended without public notice: the spelling of species' names, historical range, footnotes, references to certain other applicable portions of this Title, synonyms, and more current names. In any of these revised entries, neither the species, as defined in paragraph (b) of this section, nor its status may be changed without following the procedures of Part 424 of this Title.

(e) The "Historic Range" indicates the known general distribution of the species or subspecies as reported in the r nt scientific literature. The present .bution may be greatly reduced om this historic range. This column does not imply any limitation on the application of the prohibitions in the Act or implementing rules. Such prohibitions apply to all individuals of the species, wherever found.

(f)(1) A footnote to the Federal Register publication(s) listing or reclassifying a species is indicated under the column "When Listed." Footnote numbers to §§ 17.11 and 17.12 are in the same numerical sequence, since plants and animals may be listed in the same Federal Register document. That document, at least since 1973, includes a statement indicating the basis for the listing, as well as the effective date(s) of said listing.

(2) The "Special Rules" and "Critical Habitat" columns provide a cross reference to other sections in Parts 17, 222, 226, or 227. The term "NA" (not applicable) appearing in either of these two columns indicates that there are no special rules and/or Critical Habitat for that particular species. However, all other appropriate rules in Parts 17, 217–227, and 402 still apply to that species. In addition, there may be other rules in this Title that relate to such wildlife, e.g., port-of-entry requirements. It is not intended that the references in the "Special Rules" column list all the regulations of the two Services which might apply to the species or to the regulations of other Federal agencies or State or local governments.

(g) The listing of a particular taxon includes all lower taxonomic units. For example, the genus *Hylobates* (gibbons) is listed as Endangered throughout its entire range (China, India, and SE Asia); consequently, all species, subspecies, and populations of that genus are considered listed as Endangered for the purposes of the Act. In 1978 (43 FR 6230–6233) the species *Haliaeetus leucocephalus* (bald eagle) was listed as Threatened in "USA (WA, OR, MN, WI, MI)" rather than its entire population; thus, all individuals of the bald eagle found in those five States are considered listed as Threatened for the purposes of the Act.

(h) The "List of Endangered and Threatened Wildlife" is provided below:

KENNON SITE

Site No. TND 981473575

Reference No. 19

WATER QUALITY MANAGEMENT PLAN
FOR THE
LOWER CUMBERLAND RIVER BASIN

November, 1978

PRODUCED BY
TENNESSEE DEPARTMENT OF PUBLIC HEALTH
DIVISION OF WATER QUALITY CONTROL
309 CAPITOL TOWERS
NASHVILLE, TENNESSEE 37219

Authorization No. 0871 ; 150 copies printed. This document was printed at a cost of 3399.50 , or 22.66 each, to fulfill a requirement of EPA Grant No. P004193010 to the State of Tennessee and Section 208 of the Federal Water Pollution Control Act Amendments of 1972.

Printed by Enviro-Printers, Franklin, Tennessee

066

Adams-Cedar Hill	Red River	34.1	36°05'20"	87°35'55"	0.0960
Greenbrier	Impounded Reservoir	-	-	-	0.2810
Springfield	Sulphur Fork Creek	-	36°31'36"	86°52'54"	-
White House Utility District	Cumberland River-Old Hickory Lake	216.5	36°17'50"	86°38'00"	2.0200
Murfreesboro	East Fork Stones River (Spring)	12.3	-	-	5.3050
Smyrna	Stones River (Percy Priest Reservoir)	-	35°59'55"	86°28'45"	1.7230
Carthage	Cumberland River	309.0	36°14'36"	85°56'45"	0.3710
Dover	Cumberland River	88.8	36°29'27"	37°50'22"	0.1360
Gallatin	Cumberland River	239.1	36°20'25"	86°26'25"	2.3900
Hendersonville Utility District	Drakes Creek Cumberland River	3.7 222.1	36°17'45"	86°37'50"	2.1510
Portland	Impounded Reservoir	-	-	-	0.4330
Westmoreland	Impoundment		36°36'23"	86°29'23"	0.1640
Hartsville	Cumberland River	278.6	36°22'25"	86°10'44"	0.2810
Franklin	Harpeth River	81.5	35°54'30"	86°51'30"	1.9630
Lebanon	Cumberland River	263.0	36°17'57"	86°15'47"	2.718
West Wilson Utility District	Cumberland River	225.6	36°16'32"	86°33'35"	0.8000

TABLE III - 2
Domestic Surface Water Supplies In The Lower Cumberland River Basin

Municipality or Water Company	Water Source	River Mile	Intake Location: Coordinates: Latitude	Longitude	Avera[ge] Dai[ly] Use (
Woodbury	East Fork Stones River	44.3	35°49'36"	86°04'28"	0.3
Ashland City	Big Marrowbone Creek. Cumberland River	1.1 160.0	36°15'41"	87°03'33"	0.4
Pleasant View Utility District	Sycamore Creek	-	36°19'36"	87°03'30"	0.3
River Road Utility District	Brush Creek Cumberland River	1.1 160.7	36°16'14"	87°03'07"	0.(
South Cheatham Utility District	Harpeth River	36.1	36°06'38"	86°06'48"	0.
Cumberland Utility District	Cumberland River	207.6	36°12'30"	86°38'30"	
Harpeth Valley Utility District	Cumberland River- Cheatham Lake	172.5	36°08'10"	86°55'15"	2.7230
Madison Suburban Utility District	Cumberland River	200.3	36°14'22"	86°12'52"	7.1290
Nashville-Plant No. 1	Cumberland River	193.8	-	-	63.502
Nashville-Plant No. 2	Cumberland River	206.3	-	-	35.000
Old Hickory Utility District	Cumberland River	218.8	36°15'40"	86°38'30"	0.5790
Dickson	Impounded Reservoir	-	36°04'48"	87°24'14"	0.6500
Turnbull Utility District	Turnbull Creek	11.1	36°03'30"	87°12'15"	1.2000
Erin	Cumberland River	108.3	36°25'25"	87°34'33"	[illegible]
Clarksville	Cumberland River Big West Fork Creek	132.8 5.5	-	-	9.[illegible]710

KENNON SITE

Site No. TND 981473575

Reference No. 20

STATE OF TENNESSEE
DEPARTMENT OF HEALTH AND ENVIRONMENT

IN THE MATTER OF:	)	
	)	
GENESCO INC.	)	DIVISION OF SUPERFUND
EMMETT N. KENNON	)	
AND	)	
ROSE S. KENNON	)	NO. 86-3013
	)	
RESPONDENTS	)	

COMMISSIONER'S ORDER

Comes now, James E. Word, Commissioner of the Tennessee Department of Health and Environment, and states that:

PARTIES

I.

James E. Word is the duly appointed Commissioner of the Tennessee Department of Health and Environment (the "Department").

II.

Respondent, Genesco Inc., is a domestic corporation qualified to do business in Tennessee. Its agent for service of process is W. C. O'Connor whose mailing address is Genesco Park, Nashville, TN 37202.

III.

Respondents, Emmett N. Kennon, and wife, Rose S. Kennon are husband and wife and both are residents of the state of Tennessee. Their mailing address is 2934 Sidco Drive, Nashville, TN 37204.

JURISDICTION

IV.

Pursuant to T.C.A. Section 68-46-206, the Commissioner is authorized to issue an order to any liable party requiring such party to investigate, identify, contain, and clean-up, including monitoring and maintenance, inactive hazardous substance sites which pose or may pose a danger to public health, safety or the environment because of the release or threatened release of hazardous substances. Pursuant to T.C.A. Section 68-46-215 the Commissioner may issue an Order for correction to the appropriate person, who will then comply with the Order within the time limit specified in the Order.

V.

Respondents are "persons" within the meaning of T.C.A. Section 68-46-104 and each is also a "liable party" within the meaning of T.C.A. Section 68-46-202.

FACTS

VI.

Respondent, Genesco Inc. (hereinafter "Genesco"), is a Tennessee corporation with its executive offices located at Genesco Park, Nashville, TN. Genesco operates in two major industry segments which are footwear and men's apparel. It employs approximately 3,900 persons in Tennessee.

VII.

General Adhesives, formerly known as General Adhesives and Chemical Company, is a division of Genesco Inc. which operates a manufacturing plant at 6100 Centennial Boulevard in Nashville, TN. It manufactures and sells specialty industrial and consumer products which includes adhesives, sealants, and coatings utilizing solvent-based thermoplastic and water-based technologies. It is a hazardous waste generator utilizing the EPA installation identification number TND 001981240. It is a permitted hazardous waste transporter utilizing the EPA installation identification number TND 001367549.

VIII.

Emmett N. Kennon and Rose S. Kennon are owners of certain property described herein. They have owned the property since at least 1976. A portion of said property was used for a period of time in approximately 1978 for the disposal of certain hazardous substances. To the knowledge of the Department it has not been operated as a disposal site since that time and, therefore, said property is an inactive hazardous substance disposal site, (hereinafter, the "site").

IX.

The site is within a 146.8 acre tract located along Wilson Pike in Williamson County, Tennessee, and all of said tract is located within the city limits of Brentwood, Tennessee. The site is approximately two (2) acres.

X.

The site was operated by Respondents, Kennons, as a disposal site for construction waste and for certain other waste described herein which were hazardous substances. At least one or more of the trenches used in the disposal operation were already in existence from the excavation for phosphate mining.

XI.

Genesco notified the Department on or about August 19, 1981 that it was a generator of hazardous waste. It reported that it generated hazardous waste which were described as being "waste, cement and solvents, N.O.S.". The waste was further described as being ignitable (as described in Division rule 1200-1-11-.02 promulgated under the Hazardous Waste Management Act). The waste was reported to be generated at an average rate of 7,400 kilograms per month. The major compounds of the waste were described as being acetone, hexane, toluene, methyl ethyl ketone, and 1, 1, 1 trichloroethylene.

XII.

On or about May 21, 1985 Genesco reported in a letter to the Department, that during the summer and/or fall of 1978, General Adhesives had disposed of approximately eight hundred (800) 55 gallon barrels of waste material in a rural area of Williamson County, Tennessee". The rural disposal area is now known to be the property of Respondents Emmett N. Kennon and Rose S. Kennon. To the knowledge and belief of the Department, the waste was transported to the site by Respondent Genesco and/or by Respondents Kennon.

XIII.

In the same letter referenced above, it was stated that approximately 50 to 80 barrels were buried and the remainder of the waste was poured from the barrels into earthern trenches at the site.

XIV.

It was further stated in the same letter, that the exact amount and contents of the waste material were unknown; however, Genesco believed that the waste contained water-based adhesives and may have contained acetone, ethyl acetone, hexane, methylene chloride, methyl ethyl ketone, rubber solvent, toluene, 1, 1, 1 - trichloroethane, [illegible]

XV.

On or about August 9, 1985 Genesco submitted a plan of investigation of the site to the Department. The plan was revised according to Department comments and resubmitted on September 25, 1985. The plan was approved by the Department on or about October 2, 1985. Genesco then began to investigate the extent of any environmental impact including the sampling of waste, soil, and water in and around the site. Water samples included samples of leachate at the site, springs, a seep, and water wells in the vicinity.

XVI.

Laboratory analysis of certain samples reveal the presence of hazardous substances including, but not limited to: arsenic, lead, chromium, trans-1, 2-dichloroethene, 1,1,1 trichloroethane, 1, 1-dichloroethane, 1, 2-dichloroethane, toluene, bis (2-ethyl hexyl) phthalate, naphthalene, ethylbenzene and trichloroethane. The location of a spring and a seep and the laboratory analysis of the same indicate that the contaminants are migrating from the site. The exact analysis results and sampling locations are listed in Tables A, B, C and D of this Order.

TABLE A

Samples Collected January 28, 1986 by Department Staff

at an On-Site Seep Approximately 500 feet Southeast

of the Site

Hazardous Substance	Level of Contamination	Type of Sample
Arsenic	.217 ppm	water
Arsenic	18.0 ppm	soil
Lead	.12 ppm	water
Lead	7.6 ppm	soil
Chromium	.15 ppm	water
Chromium	9.3 ppm	soil

TABLE B

Samples Collected February 7, 1986 by Department Staff

at an Off-Site Spring (Hackett Spring)

Approximately 1200 Feet Southeast

of the Site

Hazardous Substances	Level of Contamination	Type of Sample
Trans -1, 2-dichloroethene	.07 ppm	water
1, 1, 1 trichloroethane	.013 ppm	water
1, 1-dichloroethane	.026 ppm	water

TABLE C

Sample Collected January 22, 1986 by Department

Staff at Pit A from the Disposal Site

Hazardous Substance	Level of Contamination	Type of Sample
Arsenic	9 ppm	soil
Chromium	14 ppm	soil
Lead	8 ppm	soil
1, 1-dichloroethane	4.3 ppm	soil
1, 2-dichloroethane	1.2 ppm	soil
Trans -1, 2-dichloroethane	3.3 ppm	soil
Toluene	120 ppm	soil
1, 1, 1-trichloroethane	2.2 ppm	soil

TABLE D

Samples Collected January 22, 1986 by Department

Staff from PIT B from the Disposal Site

Hazardous Substance	Level of Contamination	Type of Sample
Chromium	14 ppm	waste
Bis (2-ethyl hexyl) phthalate	940 ppm	waste
Naphthalene	110 ppm	waste
Chromium	14 ppm	soil
1, 2-dichlorethane	11.11 ppm	soil
Ethyl benzene	19.19 ppm	soil
Tetrachloroethene	220 ppm	soil
Toluene	6,200 ppm	soil
1, 1, 1-trichloroethane	160 ppm	soil
Trichloroethane	6.9 ppm	soil

XVII.

Based on the laboratory analysis and the location of these samples, it is the opinion of the Department that hazardous substances have been disposed of at the site, migrated from the site, and that the substances have contaminated ground water. Immediate remedial measures are necessary and appropriate because of potential harm to the public health and environment.

CLAIMS FOR RELIEF

XVIII.

By owning and operating a hazardous substance disposal site and by being the generator of the hazardous substances who at the time of disposal caused such substance to be disposed at the site, each of the Respondents is a "liable party" as defined at T.C.A. Section 68-46-202 which is defined as:

"(a) The owner or operator of an inactive hazardous substance site;

(b) Any person who at the time of disposal was the owner or operator of an inactive hazardous substance site;

(c) Any generator of hazardous substance who at the time of disposal caused such substance to be disposed of at an inactive hazardous substance site; or

(d) Any transporter of hazardous substances which is disposed of at an inactive hazardous substance site who, at the time of disposal, selected the site of disposal of such substances."

This site is an inactive hazardous substance site within the meaning of T.C.A. Section 68-46-202 which is defined as "any site or area where hazardous substance disposal has occurred."

XIX.

PREMISES CONSIDERED, I, James E. Word, hereby ORDER the Respondents to comply with the following:

A. The Respondents shall conduct such IMMEDIATE REMEDIAL

1. The Respondents must submit a plan to the Department within fifteen (15) days of the receipt of this Order describing how the Respondents will provide a permanent adequate, and potable water source for human consumption and household use to the residents potentially impacted by the site. Until such time as a permanent water supply is provided, the Respondents shall supply adequate drinking water to those persons in the vicinity of the site that they are presently supplying and others deemed appropriate by the Department.

2. The Respondents will define the potentially impacted area within the above referenced plan and said plan will include a proposed chronology of activities and a schedule for the completion of activities. The plan will describe how the Respondents will provide and install said water source including any agreements with public utility districts. The plan will further include a well water monitoring program for sampling and testing specified existing wells outside the perimeter of the "potentially impacted area."

3. The Respondents will submit a separate plan to the Department within thirty (30) days of the receipt of this Order which will describe how the Respondents will control the source of release of the contaminants to prevent migration of the same. Said plan will define the scope of the source and provide a proposal of activities for immediate remedial measures and a schedule for completion of said activities. The Respondent will implement the plan upon the approval and notice to procede of the Department.

4. The Department will review said plans and may require revisions as deemed necessary. Respondents shall implement all immediate remedial action plans as they are approved by the Department.

B. INITIAL ASSESSMENT

1. Within sixty (60) days of receipt of this Order, the Respondents shall submit to the Department any existing data available to the

Respondents which is pertinent to the assessment of the hazard that the specified site may pose to public health and the environment. This information shall include available data listed in paragraph XIX C2 of this Order and shall be submitted in duplicate.

2. Following receipt of this information, the Department will schedule an initial assessment conference which the Respondents shall attend in the Nashville Office of the Department, Division of Superfund. The Respondents shall be given seven (7) days notice prior to this meeting. The purpose of this conference will be to discuss existing data and determine the need for further investigation, remedial action and/or long term monitoring and maintenance. A schedule for future activities, deemed necessary by the Department, shall be established at this conference. Depending on existing data, the Department may determine that no further action is necessary. In all other cases, the schedule established in this conference will provide the dates by which the activities enumerated herein must be completed.

C. INVESTIGATION PROGRAM

1. According to the schedule established in the initial assessment conference, the Respondents shall submit to the Department a proposed Investigation Plan.

2. In order to provide an accurate assessment of the hazard posed by the site to public health and the environment and to develop design data for remedial action, the Investigation Plan shall include, but not be limited to, assessment of the following factors:

a. Types and quantities of hazardous substances disposed at the site.

b. Physical state, analytical summary, toxicological characteristics and other pertinent data defining hazardous substances present at the site.

c. Methods and extent of the disposal operation including containment methods used, plans and/or photographs of site operation, perimeter and depth of disposal area, and type of disposal operation conducted (open burning, trench, surface impoundment, etc.).

d. Observed release of contaminants to ground water, surface water or air, including sampling, to determine contaminant concentrations and extent of contaminant migration.

e. Hydrogeologic factors to determine depth to groundwater, permeability of the unsaturated zone, distance to nearest surface water and slope of the disposal area and intervening terrain.

f. Population and environment potentially affected:

   (1.) Ground water use and population served by ground water sources within a three (3) mile radius of the perimeter of contaminant migration.

   (2.) Surface water use and population served within a three (3) mile reach downstream of the perimeter of contaminant migration.

   (3.) Population potentially affected by contaminant releases to the air within a four (4) mile radius of the perimeter of contaminant migration.

   (4.) Distance from the site to sensitive environments such as a natural wetland, critical habitat for an endangered species or a National Wildlife Refuge.

g. Fire and explosion hazard assessment of the site.

h. Direct contact hazard assessment of the site.

3. The Investigation Plan must include cost estimates and a proposed schedule for completion of activities involved in the investigation. Following a review of the Plan, the Department may schedule a meeting which Respondents shall attend to discuss any revisions required by the Department. The Respondents will be given seven (7) days notice prior to the meeting. On or before a deadline date established in this review meeting, a revised Investigation Plan shall be submitted by the Respondents to the Department. Upon approval by the Department of the revised Investigation Plan, the Respondents shall begin required activities according to the revised Investigation Plan.

D. REMEDIAL ACTION SELECTION AND IMPLEMENTATION

1. Following completion of the investigation activities, a report providing an assessment of the hazard posed by the site to public health and the environment and proposing remedial action alternatives shall be submitted by the Respondents to the Department according to the Investigation Plan schedule. One of the alternatives that shall be addressed in the report shall be the removal of the source of contamination. This report will be referred to as a Hazard Evaluation/Remedial Action report (herein after referred to as "HE/RA"). Remedial action alternatives must include cost estimates and proposed schedules for completion of activities involved in remedial action implementation.

2. Assessment of each remedial action alternative must include consideration of the following factors:

   a. The technological feasibility of each alternative;

   b. The cost-effectiveness of each alternative;

   c. The nature of the danger to the public health, safety, and the environment posed by the hazardous substances at the site; and

d. The extent to which each alternative would achieve the goal of T.C.A. Section 68-46-206(d) which states, in part, ". . . The goal of any such action shall be cleanup and containment of the site through the elimination of the threat to public health, safety and the environment posed by the hazardous substance."

3. Following the Department's review of the HE/RA Report, the Department may schedule a meeting which the Respondents shall attend, to discuss any revisions required by the Department. The Respondents will be given seven (7) days notice prior to the meeting. On or before a deadline date established in this review meeting, a final HE/RA Report shall be submitted to the Department. Upon receipt of approval by the Department of the final HE/RA Report, the Respondents shall begin activities required by the final HE/RA Report, unless the Department determines no further action is necessary.

4. The HE/RA activities shall not be considered complete until the Department has reviewed these activities and issued a letter of acceptance to the Respondents.

E. <u>SITE MONITORING AND MAINTENANCE</u>

1. Where the Department determines a need for site monitoring and maintenance, the Respondents shall provide a Site Monitoring and Maintenance Plan (herein after referred to as "M/M Plan") which shall include a proposed schedule for completion of required activities and cost estimates within ninety (90) days of receipt of a request for said Plan by the Department.

2. Within forty-five (45) days of receipt of this M/M Plan by the Department, the Respondents shall attend a meeting with the Department to discuss any required revisions. On or before a deadline established in this review meeting, a revised M/M Plan shall be submitted by the Respondents to the Department. Upon receipt of approval by the Department, the revised M/M Plan will go into

F. To the extent practicable, any investigation, identification, containment and clean-up, including monitoring and maintenance, shall be consistent with the national contingency plan promulgated pursuant to Section 105 of Public Law 96-510.

G. Certain activities may be deemed critical by the Department and shall require observation by the Department. The Respondents shall provide sufficient notice to the Department to allow scheduling of personnel for these activities. The Department also reserves the right to observe any other activities required pursuant to this Order.

H. Any failure to comply with approved schedules of activities required under this Order shall be a failure to comply with this Order.

I. In this Order, any reference to the singular includes the plural.

J. Further, I, James E. Word, do not waive any rights or authority available to me to assess the Respondents for liability for costs, expenditures, civil penalties or damages incurred by the State pursuant to this Order. I also reserve the right to order such further remedial action to be completed by the Respondents where it is determined that further remedial action is needed.

Issued in this office of the Commissioner of the Tennessee Department of Health and Environment this 5th day of March, 1986.

JAMES E. WORD, Commissioner
Tennessee Department of Health
and Environment

NOTICE OF RIGHTS

Respondents are hereby advised that in accordance with T.C.A. Section 68-46-215 they may secure a review of the necessity for or reasonableness of this Order by filing with the Commissioner, a written petition setting forth the grounds and reasons for objection and asking for a hearing in the matter involved before the Solid Waste Disposal Control Board. The Order shall become final and not subject to review unless the person or persons named herein shall file such petition for a hearing no later than thirty (30) days after the date such Order is secured. Hearings will be conducted in accordance with the Tennessee Uniform Administrative Procedures Act.

Correspondence regarding this Order should be addressed to Mary E. Johnston, TERRA Bldg. 6th Floor, Assistant General Counsel, 150 Ninth Avenue, North, Nashville, Tennessee 37203 or telephone (615)741-0657.

Mary E. Johnston
Assistant General Counsel

MEJ/djv
SWM Order - Genesco

SITE SUMMARY
KENNON SITE (GENSCO)
TND 981473515

The Kennon Site (Genesco) is located near the junction of Split Log Road and Wilson Pike east of Brentwood in Williamson County, Tennessee.

The site is on the Kennon farm in an area of old phosphate pits where in 1978 General Adhesives, a subsidiary of Genesco, dumped approximately 800 drums of organic solvents, organic fillers, and adhesives. The pits were then filled. The state was informed of this unregistered landfill by Genesco in 1985.

Several private wells are still in use within three miles of the site and ground water contamination was discovered in early 1986. Residents with wells within a one mile radius (a population of approximately 118) were provided with bottled water at their discretion by Genesco until water lines could be run from Brentwood. Brentwood water is now supplied by Metro Nashville.

TAM/ib

DRAFT

DRAFT

RCRA SUMMARY
KENNON SITE (GENESCO)
TND 981473515

The Kennon Site (Genesco) is a farm with phosphate pits that was used to dump approximately 800 drums of organic solvents, fillers, and adhesives in 1978. The site was never registered as a landfill and did not have a TSD permit.

TAM/ib

Facility name: KENNON SITE (GENESCO) TND 981473515

Location: Brentwood, Williamson County, Tennessee

EPA Region: IV

Person(s) in charge of the facility:

Name of Reviewer: Thomas A. Moss Date: 3/5/87

General description of the facility:

(For example: landfill, surface impoundment, pile, container; types of hazardous substances; location of the facility; contamination route of major concern; types of information needed for rating; agency action, etc.)

The Kennon Site (Genesco) is a drum disposal site used by General Adhesives, a subsidiary of Genesco, in 1978 to dispose of approximately 800 drums of organic solvents, fillers, water-based adhesives by dumping them in phosphate pits and covering the pits at the site. The aquifer of concern is a carbonate, fracture-based, solutionally enlarged aquifer. A population of over 100 persons were on private wells within 3 miles of the site prior to the remedial action of water lines being run.

Scores: S_M = 25 (S_{gw} = 43.2 S_{sw} = 5.3 S_a = N.R.)

S_{FE} = NOT RATED

S_{DC} = NOT RATED

FIGURE 1
HRS COVER SHEET

Ground Water Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
[1] Observed Release	0 45	1	45	45	3.1
If observed release is given a score of 45, proceed to line [4]. If observed release is given a score of 0, proceed to line [2].					
[2] Route Characteristics					3.2
Depth to Aquifer of Concern	0 1 2 3	2		6	
Net Precipitation	0 1 2 3	1		3	
Permeability of the Unsaturated Zone	0 1 2 3	1		3	
Physical State	0 1 2 3	1		3	
Total Route Characteristics Score				15	
[3] Containment	0 1 2 3	1		3	3.3
[4] Waste Characteristics					3.4
Toxicity/Persistence	0 3 6 9 12 ~~15~~ 18	1	~~15~~ 18	18	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1	4	8	
Total Waste Characteristics Score			~~19~~ 22	26	
[5] Targets					3.5
Ground Water Use	0 1 2 3	3	9	9	
Distance to Nearest Well/Population Served	0 4 6 8 10 12 16 18 20 24 30 32 35 40	1	20	40	
Total Targets Score			29	49	
[6] If line [1] is 45, multiply [1] x [4] x [5] If line [1] is 0, multiply [2] x [3] x [4] x [5]			24795	57,330	
[7] Divide line [6] by 57,330 and multiply by 100			S_{gw} = ~~43.2~~ 50.08		

FIGURE 2
GROUND WATER ROUTE WORK SHEET

Surface Water Route Work Sheet					
Rating Factor	**Assigned Value (Circle One)**	**Multiplier**	**Score**	**Max. Score**	**Ref. (Section)**
1 Observed Release	0 45	1	0	45	4.1
If observed release is given a value of 45, proceed to line 4. If observed release is given a value of 0, proceed to line 2.					
2 Route Characteristics					4.2
Facility Slope and Intervening Terrain	0 1 2 3	1	1	3	
1-yr. 24-hr. Rainfall	0 1 2 3	1	2	3	
Distance to Nearest Surface Water	0 1 2 3	2	4	6	
Physical State	0 1 2 3	1	3	3	
	Total Route Characteristics Score		10	15	
3 Containment	0 1 2 3	1	3	3	4.3
4 Waste Characteristics					4.4
Toxicity/Persistence	0 3 6 9 12 15 18	1	~~15~~ 18	18	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1	4	8	
	Total Waste Characteristics Score		~~19~~ 22	26	
5 Targets					4.5
Surface Water Use	0 1 2 3	3	6	9	
Distance to a Sensitive Environment	0 1 2 3	2	0	6	
Population Served/Distance to Water Intake Downstream	0 4 6 8 10 / 12 16 18 20 / 24 30 32 35 40	1	0	40	
	Total Targets Score		6	55	
6 If line 1 is 45, multiply 1 x 4 x 5. If line 1 is 0, multiply 2 x 3 x 4 x 5			3960 ~~3420~~	64,350	
7 Divide line 6 by 64,350 and multiply by 100	S_{sw} = ~~5.3~~ 6.15				

FIGURE 7
SURFACE WATER ROUTE WORK SHEET

NOT RATED

Air Route Work Sheet					
Rating Factor	**Assigned Value (Circle One)**	**Multiplier**	**Score**	**Max. Score**	**Ref. (Section)**
[1] Observed Release	0 45	1		45	5.1
Date and Location:					
Sampling Protocol:					
If line [1] is 0, the S_a = 0. Enter on line [5]. If line [1] is 45, then proceed to line [2].					
[2] Waste Characteristics					5.2
Reactivity and Incompatibility	0 1 2 3	1		3	
Toxicity	0 1 2 3	3		9	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
	Total Waste Characteristics Score			20	
[3] Targets					5.3
Population Within 4-Mile Radius	0 9 12 15 18 21 24 27 30	1		30	
Distance to Sensitive Environment	0 1 2 3	2		6	
Land Use	0 1 2 3	1		3	
	Total Targets Score			39	
[4] Multiply [1] x [2] x [3]				35,100	
[5] Divide line [4] by 35,100 and multiply by 100	S_a =				

FIGURE 9
AIR ROUTE WORK SHEET

	S	S^2
Groundwater Route Score (S_{gw})	~~43.2~~ 50.08	~~1866.24~~ 2508.01
Surface Water Route Score (S_{sw})	~~5.3~~ 6.15	~~28.09~~ 37.82
Air Route Score (S_a)	NOT RATED	NOT RATED
$S_{gw}^2 + S_{sw}^2 + S_a^2$		~~1894.33~~ 2545.83
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		43.5 50.5
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} \,/\, 1.73 = S_M =$		~~25.2~~ 29.19

FIGURE 10
WORKSHEET FOR COMPUTING S_M

NOT RATED

8

Fire and Explosion Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
1 Containment	1 3	1		3	7.1
2 Waste Characteristics					7.2
Direct Evidence	0 3	1		3	
Ignitability	0 1 2 3	1		3	
Reactivity	0 1 2 3	1		3	
Incompatibility	0 1 2 3	1		3	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
	Total Waste Characteristics Score			20	
3 Targets					7.3
Distance to Nearest Population	0 1 2 3 4 5	1		5	
Distance to Nearest Building	0 1 2 3	1		3	
Distance to Sensitive Environment	0 1 2 3	1		3	
Land Use	0 1 2 3	1		3	
Population Within 2-Mile Radius	0 1 2 3 4 5	1		5	
Buildings Within 2-Mile Radius	0 1 2 3 4 5	1		5	
	Total Targets Score			24	
4 Multiply 1 x 2 x 3				1,440	
5 Divide line 4 by 1,440 and multiply by 100	S_{FE} =				

FIGURE 11
FIRE AND EXPLOSION WORK SHEET

NOT RATED

Direct Contact Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
1 Observed Incident	0 45	1		45	8.1
If line 1 is 45, proceed to line 4 If line 1 is 0, proceed to line 2					
2 Accessibility	0 1 2 3	1		3	8.2
3 Containment	0 15	1		15	8.3
4 Waste Characteristics Toxicity	0 1 2 3	5		15	8.4
5 Targets					8.5
Population Within a 1-Mile Radius	0 1 2 3 4 5	4		20	
Distance to a Critical Habitat	0 1 2 3	4		12	
	Total Targets Score			32	
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5				21,600	
7 Divide line 6 by 21,600 and multiply by 100	S_{DC} =				

FIGURE 12
DIRECT CONTACT WORK SHEET

DOCUMENTATION RECORDS
FOR
HAZARD RANKING SYSTEM

FACILITY NAME: KENNON SITE (GENESCO)
TND 981473515

FACILITY DESCRIPTION: COVERED PITS WITH DRUMS AND DUMPED LIQUIDS IN FIELD

LOCATION: BRENTWOOD, TENNESSEE

DATE SCORED: March 5, 1987

PERSON SCORING: THOMAS A. MOSS

PRIMARY SOURCE(S) OF INFORMATION (e.g., EPA region, state, FIT, etc.):
State Superfund Files

FACTORS NOT SCORED DUE TO INSUFFICIENT INFORMATION:
Air, Fire and Explosion, Direct Contact

COMMENTS OR QUALIFICATIONS:
Water lines have been run to houses that were on private wells in the area.

GROUND WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected (5 maximum):

Trans -1,2-dichloroethene; toluene; 1,1 dichloroethane and 1,1,1 trichloroethane detected in Hackett Spring and on site monitoring wells by State Superfund sampling (Ref. 1) and are known to be toxic (Ref. 2,3).

Rationale for attributing the contaminants to the facility:

Genesco has admitted dumping, drums which they say probably contained organic solvents (including 1,1,1 trichloroethane and toluene), rubber solvent, water based adhesives, and organic fillers (Ref. 4). 1,1,1 trichloroethane, toluene, trans-1,2-dichloroethane detected in on site monitoring wells (Ref. 1-Genesco Wells 8 and 9).

2 ROUTE CHARACTERISTICS

__Depth to Aquifer of Concern__

Name/description of aquifer(s) of concern:

The aquifer of concern ~~would be~~ is the Bigby Cannon Limestone (70-130 ft. thick) as well as the underlying Hermitage Formation (50-100 ft. thick), with no confining layer present. Sinkholes and vertical fractures are present, this carbonate aquifer ~~would be~~ is a fracture based, solutionally enlarged system. The Bigby-Cannon contains facies ranging from a microcrystalline limestone facies to medium and coarse grained limestone facies. The Hermitage Formation consists of thin bedded shaley limestone and sandy limestone. Underlying the Hermitage is more of the thick sequence of Middle and Lower Ordovician carbonates including the Carters Limestone, a dominantly cryptocrystalline limestone ranging to course grained, sometimes dolomitic. The Carters is approx. 70 ft. thick. The underlying Lebanon Limestone has similar lithology and is 30+ ft. thick (Ref. 5,6). The majority of the private wells have depths of 150-350 ft. (Ref. 7) and would be completed in the Hermitage Formation or Carters Limestone (Ref. 5,6).

Depth(s) from the ground surface to the highest seasonal level of the saturated zone (water table(s)) of the aquifer of concern:

Water depth in U.S.G.S. wells averaged 30 feet below land surface, average altitude 772 ft. with site at approx. 780 ft. (Ref. 7).

Depth from the ground surface to the lowest point of waste disposal/storage:

The phosphate pits and trenches in which the material were dumped are of unknown depth (Ref. 4). Assume default value of 6 ft.

__Net Precipitation__

Mean annual or seasonal precipitation (list months for seasonal):

48 inches (Ref. 8).

Mean annual lake or seasonal evaporation (list months for seasonal):

38 inches (Ref. 8).

Net precipitation (subtract the above figures):

10 inches

KENNON SITE (C...NESCO)
TND 981473515

Permeability of Unsaturated Zone

Soil type in unsaturated zone:
Soil in area is a silt loam, but is generally only 2½ to 5ft thick (REF.7). Waste dumped in phosphate pits (REF.4) probably at or near bedrock. The Bigby-Cannon Limestone has sinkhole development (REF.5,6) and would be considered a Karst limestone, with the soil layer absent or nearly so.

Permeability associated with soil type:
$> 10^{-3}$ cm/sec for Karst limestone (REF 8).

Physical State

Physical state of substances at time of disposal (or at present time for generated gases):
Liquids dumped in pits at site by admission of company (REF.4).

* * *

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:
Landfill with no liner - drums and liquid dumped in unlined pits and trenches (REF.4).

Method with highest score:
Landfill with no liner present.

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:
1,1 dichloroethene and 1,1 dichloroethane detected in pits A and B and monitoring well # 8 on site by State Superfund Sampling (REF.1).

Compound with highest score:
1,1 dichloroethene has a toxicity rating of 3 (REF.3) and a persistence rating of 2 (REF.8).

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

800 drums

Basis of estimating and/or computing waste quantity:
Genesco admission of the dumping of approximately 800 55-gallon barrels of waste material containing organic solvents, organic fillers, and water-based adhesives at the site by their subsidiary General Adhesives (REF. 4).

5 TARGETS

Ground Water Use

Use(s) and aquifer(s) of concern within a 3-mile radius of the facility:
Drinking water with no municipal water presently available (REF. 10, 11).

Distance to Nearest Well

Location of nearest well drawing from aquifer of concern or occupied building not served by a public water supply:
Hackett Spring is used as a drinking water supply by the Hacketts (REF. 12). Hackett house is on east side of Wilson Pike approx. 1000 ft north of Split Log Road (REF. 1 - sample points map, REF. 13, 14).

Distance to above well or building:
Hackett Spring is contaminated (REF. 1), distance will be considered to be zero. Actual distance from pits is approx. 1500 ft (REF. 13, 14).

Population Served by Ground Water Wells Within a 3-Mile Radius

Identified water-supply well(s) drawing from aquifer(s) of concern within a 3-mile radius and populations served by each:
31 houses identified not on municipal water within a one mile radius which required water lines run and service connections (REF. 1 sample points map, REF. 10, 11). Using 3.8 people/house, this would give a population of 118 within a one mile radius and additional population within a three mile radius.

Computation of land area irrigated by supply well(s) drawing from aquifer(s) of concern within a 3-mile radius, and conversion to population (1.5 people per acre):

None identified (REF. 15)

Total population served by ground water within a 3-mile radius:

118+ 000

KENNON SITE (SENECO)
TND [illegible]5.5

SURFACE WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected in surface water at the facility or downhill from it (5 maximum):

None identified

Rationale for attributing the contaminants to the facility:

N/A

* * *

2 ROUTE CHARACTERISTICS

Facility Slope and Intervening Terrain

Average slope of facility in percent:
60 ft in 1800 ft for 3.3% slope (REF. 13, 14).

Name/description of nearest downslope surface water:
Unnamed creek entering the Little Harpeth River north of the junction of Wilson Pike and Split Log Road (REF. 13, 14).

Average slope of terrain between facility and above-cited surface water body in percent:
80 ft in 1800 ft for 4% slope (REF. 13, 14).

Is the facility located either totally or partially in surface water?
No (REF. 13, 14).

Is the facility completely surrounded by areas of higher elevation?
No (REF. 13, 14).

1-Year 24-Hour Rainfall in Inches

3 inches (REF. 8).

KENNON SITE (GENESCO)
TND 021473515 11

Distance to Nearest Downslope Surface Water

0.4 miles from site to where surface drainage enters unnamed tributary of Little Harpeth River (REF.13,14).

Physical State of Waste

Liquids dumped in pits at site by admission of company (REF.4).

* * *

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:
Landfill not adequately covered and no diversion system present — drums and liquid emptied into pits and covered with no documentation indicating adequate cap (REF.4).

Method with highest score:
Landfill not covered, no diversion system present

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:
1,1 dichloroethene and 1,1 dichloroethane detected in pits A and B and monitoring well #8 on site by State Superfund Sampling (REF.1).

Compound with highest score:
1,1 dichloroethene has a toxicity rating of 3 (REF.3) and a persistence rating of 2 (REF.8).

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):
800 drums

Basis of estimating and/or computing waste quantity:
Genesco admission of the dumping of approximately 800 55-gallon barrels of waste material containing organic solvents, organic fillers, and water-based adhesives at the site by their subsidiary 6 General Adhesives (REF.4).

KENNON SITE (GENESCO)
TND 981473515

5 TARGETS

Surface Water Use

Use(s) of surface water within 3 miles downstream of the hazardous substance:

Recreational use of the Little Harpeth River between Split Log Road and Concord Road (REF. 15).

Is there tidal influence?

No (REF. 13, 14).

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

None identified (REF. 13, 14).

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

None identified (REF. 13, 14).

Distance to critical habitat of an endangered species or national wildlife refuge, if 1 mile or less:

None identified (REF. ~~15~~). 16

Population Served by Surface Water

Location(s) of water-supply intake(s) within 3 miles (free-flowing bodies) or 1 mile (static water bodies) downstream of the hazardous substance and population served by each intake:

None identified (REF. 17)

Computation of land area irrigated by above-cited intake(s) and conversion to population (1.5 people per acre):

None identified (REF. 15).

Total population served:

N/A

KENNON SITE (GLIESCO)
TND 98147515

Name/description of nearest of above water bodies:

N/A

Distance to above-cited intakes, measured in stream miles:

N/A

KENNON SITE (CLNE?) TND 98147351C

19

NOT RATED

AIR ROUTE

1 OBSERVED RELEASE

Contaminants detected:

Date and Location of detection of contaminants:

Methods used to detect the contaminants:

Rationale for attributing the contaminants to the site:

* * *

2 WASTE CHARACTERISTICS

Reactivity and Incompatibility

Most reactive compound:

Most incompatible pair of compounds:

Toxicity

Most toxic compound:

KENNON SITE (GENESCO)
TND 981-73519

Hazardous Waste Quantity

Total quantity of hazardous waste:

Basis of estimating and/or computing waste quantity:

* * *

3 TARGETS

Population Within 4-Mile Radius

Circle radius used, give population, and indicate how determined:

0 to 4 mi   0 to 1 mi   0 to 1/2 mi   0 to 1/4 mi

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

Distance to critical habitat of an endangered species, if 1 mile or less:

Land Use

Distance to commercial/industrial area, if 1 mile or less:

Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:

REUNION SITE (GENESCO)
TND [illegible]-73515

Distance to residential area, if 2 miles or less:

Distance to agricultural land in production within past 5 years, if 1 mile or less:

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site?

KENNON SITE (GENESCO)
TNO 9814 73515

2-2

NOT RATED

FIRE AND EXPLOSION

1 CONTAINMENT

Hazardous substances present:

Type of containment, if applicable:

* * *

2 WASTE CHARACTERISTICS

Direct Evidence

Type of instrument and measurements:

Ignitability

Compound used:

Reactivity

Most reactive compound:

Incompatibility

Most incompatible pair of compounds:

* * *

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility:

Basis of estimating and/or computing waste quantity:

* * *

3 TARGETS

Distance to Nearest Population

Distance to Nearest Building

Distance to Sensitive Environment

Distance to wetlands:

Distance to critical habitat:

Land Use

Distance to commercial/industrial area, if 1 mile or less:

Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:

Distance to residential area, if 2 miles or less:

Distance to agricultural land in production within past 5 years, if 1 mile or less:

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site?

<u>Population Within 2-Mile Radius</u>

<u>Buildings Within 2-Mile Radius</u>

KENNON SITE (GEDESCO)
IND 184735.5
2.5

NOT RATED

DIRECT CONTACT

1 OBSERVED INCIDENT

Date, location, and pertinent details of incident:

* * *

2 ACCESSIBILITY

Describe type of barrier(s):

* * *

3 CONTAINMENT

Type of containment, if applicable:

* * *

4 WASTE CHARACTERISTICS

Toxicity

Compounds evaluated:

Compound with highest score:

* * *

KENMON SITE (GENESCO)
[illegible] 2[illegible] [illegible]S1S

2(

5 TARGETS

<u>Population within one-mile radius</u>

<u>Distance to critical habitat (of endangered species)</u>

Disc--Higgs/GrndW2

REFERENCES

single space

1. State Superfund Sampling Results for Kennon Site (Genesco) with Sample Points Map for Wells/Springs

1.A. Geology associates sample results from Kennon site (specialized [illegible])

2. G. Hawley, revised (1981): Condensed Chemical Dictionary, Tenth Edition; Van Nostrand Reinhold Company.

3. N.I. Sax (1984): Dangerous Properties of Industrial Materials, 6th Edition; Van Nostrand Reinhold Company.

4. 6/21/85 Letter from Ralph Mosely, Genesco ~~Genesco [illegible]~~ to Tom Tiesler, DSWM; Re: Chemical Waste Site once Used by a Division of Genesco.

5. (1963) Franklin Quadrangle Geologic Map - GM 63-NE

~~8. (1977) Beaver Engineering~~

6. Beaver Engineering (1977): Bedrock Geology of the Nashville and Middle Tennessee Area.

7. 2/19/87 Letter from Roger W. Lee, U.S. Geological Survey to Todd Hughes, Tn. Dept. Health and Environment (Superfund) - Data on Observation Wells.

Domestic well data, Geraghty & Miller Plan for Investigation of the Kennon site, Dec 1982

8. (1984) Uncontrolled Hazardous Waste Site Ranking System, A Users Manual (HW-10); U.S.E.P.A.

9. (1964) Soil Survey of Williamson County, Tennessee; Series 1961, no. 5; U.S. Dept. of Agricult Soil Conservation Service.

10. 2/19/86 Letter from Frank W. Clifton, Jr. Brentwood City Manager to Don Shackl Tn. Div. Superfund; Re: Cost Estimates for Water Lines

11. 7/28/86 Letter from Ralph Mosely, Genesco to Frank W. Clifton, Jr., Brentwood City Mana Re: Service Connections.

12. 3/6/87 Conversation of Thomas A. Moss DSF with Ronnie L. Bowers, DSF; Re: Kennon Site (Genesco) Sample Results, Water

13. (1981) Franklin Quadrangle Topographic Map 63 NE

14. (1957) Nolensville Quadrangle Topographic Ma 70NW

15. 3/10/87 Telephone Conversation of Thomas A. Moss, DSF with Robin Bowie, Williamson County Soil Conservation Service; Re: Surface and Groundwater Use for Irrigation in the Area of the Genesco Site.

16. 12/19/85 Letter from Robert M. Hatcher, TWRA to Gordon S. Caruthers, DSWM with attachments: Critical Wildlife Habitat of Tennessee, U.S. Fish and Wildlife Service.

17. (1978) Water Quality Management Plan for the Lower Cumberland River Basin, Tn. Division of Water Quality Control.

18. Commissioners Order (Genesco Inc. / Emmett & Rose Kennon. Order No 86 30 13

3-

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

EPA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
TN	981473515

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site): [illegible]

02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER: TAKE I65 S FROM NASHVILLE. EXIT MOORES LANE TO WILSON PIKE. SOUTH ON WILSON PIKE 1.2 MILES. SITE IS .5 M[illegible] TO THE EAST OF THAT POINT, AC[illegible]

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
BRENTW[illegible]	TN		WILLIAMSON		

09 COORDINATES: LATITUDE ___ LONGITUDE ___

10 TYPE OF OWNERSHIP (Check one): ☒ A. PRIVATE ☐ B. FEDERAL ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL ☐ F. OTHER ☐ G. UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION (MONTH DAY YEAR)	02 SITE STATUS	03 YEARS OF OPERATION
1 / 24 / 86	☐ ACTIVE ☒ INACTIVE	1978 (BEGINNING YEAR) / 1978 (ENDING YEAR) ___ UNKNOWN

04 AGENCY PERFORMING INSPECTION (Check all that apply)

☐ A. EPA ☐ B. EPA CONTRACTOR ______ (Name of firm) ☐ C. MUNICIPAL ☐ D. MUNICIPAL CONTRACTOR ______ (Name of firm)

☒ E. STATE ☐ F. STATE CONTRACTOR ______ (Name of firm) ☒ G. OTHER GEOLOGY ASSOCIATES (FOR GENESCO) (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO.
RONNIE BOWERS	ENVIRONMENTAL SPEC	SUPERFUND	(615) 741 6288

09 OTHER INSPECTORS	10 TITLE	11 ORGANIZATION	12 TELEPHONE NO.
TODD HUGHES	GEOLOGIST	SUPERFUND	(615) 741 62[illegible]
WAYNE McCOY	PROJECT MANAGER	EDGE	(615) 383 3588
MARK LEVY		GEOLOGY ASSOC[illegible]	( )
			( )
			( )

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO.
RALPH MOSLEY	SAFETY DIRECTOR	GENESCO INC, GENESCO PARK NASHVILLE TN. 37202	(615) 367 8417
EMMETT KENLON	SITE OWNER	2934 SIDCO DRIVE, NASHVILLE	( )
			( )
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
☒ PERMISSION ☐ WARRANT		

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO.
CHARLES POWERS	TDHE - SUPERFUND	(615) 741 6288

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE (MONTH DAY YEAR)
WILLIAM FORRESTER	SUPERFUND	TDHE	741 62[illegible]	3 / 6 / 87

31

EPA

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
TN	981473515

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- [ ] A. SOLID
- [ ] B. POWDER, FINES
- [ ] C. SLUDGE
- [ ] D. OTHER ________ (Specify)
- [ ] E. SLURRY
- [x] F. LIQUID
- [ ] G. GAS

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

TONS ________

CUBIC YARDS ________

NO. OF DRUMS ± - 800

03 WASTE CHARACTERISTICS (Check all that apply)

- [x] A. TOXIC
- [ ] B. CORROSIVE
- [ ] C. RADIOACTIVE
- [x] D. PERSISTENT
- [ ] E. SOLUBLE
- [ ] F. INFECTIOUS
- [ ] G. FLAMMABLE
- [ ] H. IGNITABLE
- [ ] I. HIGHLY VOLATILE
- [ ] J. EXPLOSIVE
- [ ] K. REACTIVE
- [ ] L. INCOMPATIBLE
- [ ] M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS	✓		
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS	✓		
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
	ARSENIC	7440382			.217 PPM
	LEAD				8 PM
	CHROMIUM	7440473			14 PPM
	TRANS 1,2 DICHLOROETHENE				
✓	111 TRICHLOROETHANE	25323891			6950PPM
	1,1 DICHLOROETHANE				280 PPM
	1,2 DICHLOROETHANE				59 PPM
	TOLUENE	108 88 3			29434 PPM
	BIS(2ETHYL hexyl) PHTHALATE				940 PPM
	NAPHTHALENE	91-20-3			110 PPM
	ETHYLBENZENE	100 41 4			
	TRICHLOROETHYLENE	79 01 6			44 PPM
	ACETONE				4980 PPM
	BENZENE				6522 PPM
	METHYL ETHYL KETONE				9285 PPM
	TETRA CHLOROETHYLENE				14911 PPM

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS	ARSENIC	7440 38 2	FDS		
FDS	CHROMIUM	7440 47 3	FDS		
FDS	NAPTHALENE	91 20 3	FDS		
FDS	TOLUENE	570000	FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Superfund file 94508 analytical Results from IT, specialized drawings

Ref # 1

EPA

POTENTIAL HAZARDOUS WASTE SITE.
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
TN	981473515

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☒ A. GROUNDWATER CONTAMINATION — 02 ☐ OBSERVED (DATE: 1/28/86) — ☐ POTENTIAL — ☒ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ______ 04 NARRATIVE DESCRIPTION

Genesco admitted Dumping 800 + - [illegible] of wastes containing organic solvents, organic fillers, rubber solvents and water based adhesives. Analytical data from on site monitoring wells, Hatchett [illegible] and off site wells verify the release (Ref # 1, 2, 34)

01 ☐ B. SURFACE WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: ______) — ☒ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ______ 04 NARRATIVE DESCRIPTION

The Kennon site drains in a southwesterly direction toward the Little Harpeth [illegible]. Surface drainage enters an unnamed tributary to the Little Harpeth .4 mile from the site. Hatchett Spring flows southeasterly into the Little Harpeth River, and is downgradient to the site. Ref 13, 14

01 ☐ C. CONTAMINATION OF AIR — 02 ☐ OBSERVED (DATE: ______) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ______ 04 NARRATIVE DESCRIPTION

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS — 02 ☐ OBSERVED (DATE: ______) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ______ 04 NARRATIVE DESCRIPTION

01 ☐ E. DIRECT CONTACT — 02 ☐ OBSERVED (DATE: ______) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ______ 04 NARRATIVE DESCRIPTION

01 ☒ F. CONTAMINATION OF SOIL — 02 ☐ OBSERVED (DATE: 1/28/86) — ☐ POTENTIAL — ☒ ALLEGED
03 AREA POTENTIALLY AFFECTED: 2 acres (Acres) 04 NARRATIVE DESCRIPTION

Soil samples taken on site by State Superfund [illegible] on January 22/23, 24, 1986 confirms soil contamination. (Ref #1) It was reported that only 2 acres of a 146 acre tract were used as a disposal site.

01 ☐ G. DRINKING WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: 1/28/86) — ☐ POTENTIAL — ☒ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 118 04 NARRATIVE DESCRIPTION

31 residences are identified as recipients of city water as a result of contaminated ground water. Calculating 3.8 persons per [illegible] X 31 [illegible] proposes 118 persons affected (Ref #) Sample points map, REF 10, 11)

01 ☐ H. WORKER EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: ______) — ☐ POTENTIAL — ☐ ALLEGED
03 WORKERS POTENTIALLY AFFECTED: ______ 04 NARRATIVE DESCRIPTION

01 ☐ I. POPULATION EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: ______) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ______ 04 NARRATIVE DESCRIPTION

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
TN	981473515

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☐ J. DAMAGE TO FLORA — 02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION (include name(s) of species)

01 ☐ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE: ______) X POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION
This particular fenced in tract of land encompassing the disposal area is used as a pasture for cattle.

01 X M. UNSTABLE CONTAINMENT OF WASTES (Spills/Runoff/Standing liquids, Leaking drums) — 02 ☐ OBSERVED (DATE: 1/22/86) ☐ POTENTIAL X ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ✓ — 04 NARRATIVE DESCRIPTION
Approximately 800 Barrels of contaminated wastes were disposed of at the Kennon site. 50 to 80 barrels were buried and the remaining 720 to 750 barrels were poured into 6' deep trenches and then covered with soil. No liners in pits or trenches

01 X N. DAMAGE TO OFFSITE PROPERTY — 02 ☐ OBSERVED (DATE: 1/28/86) ☐ POTENTIAL X ALLEGED
04 NARRATIVE DESCRIPTION
Several private drinking water wells and springs have been contaminated with the same hazardous substances found on the Kennon Site. (Ref # 1, 13, 14)

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE: __/__/__) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 X P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: 5/21/85) ☐ POTENTIAL X ALLEGED
04 NARRATIVE DESCRIPTION
Division of Solid Waste Management received a letter dated 5/21/85 from Ralph Mosley, Director of Safety, Genesco Inc., reporting that Genesco had dumped approximately 800 drums of contaminated wastes on the Emmett Kennon site in Brentwood Tn. (Ref # 1)

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

III. TOTAL POPULATION POTENTIALLY AFFECTED: 118 +

IV. COMMENTS

Population count has not been conducted, however it is known that 31 residences are being connected to municipal water supply therefore using the 3.8 person per household, 118 persons are affected

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Superfund Central file # 94506

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
TN	981473515

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
☐ A. NPDES				
☐ B. UIC				
☐ C. AIR				
☐ D. RCRA				
☐ E. RCRA INTERIM STATUS				
☐ F. SPCC PLAN				
☐ G. STATE (Specify)				
☐ H. LOCAL (Specify)				
☐ I. OTHER (Specify)				
☒ J. NONE				

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE
☐ A. SURFACE IMPOUNDMENT		
☐ B. PILES		
☐ C. DRUMS, ABOVE GROUND		
☐ D. TANK, ABOVE GROUND		
☐ E. TANK, BELOW GROUND		
☐ F. LANDFILL	800	BARRELS
☐ G. LANDFARM		
☐ H. OPEN DUMP		
☐ I. OTHER ______ (Specify)		

04 TREATMENT (Check all that apply)

☐ A. INCENERATION
☐ B. UNDERGROUND INJECTION
☐ C. CHEMICAL/PHYSICAL
☐ D. BIOLOGICAL
☐ E. WASTE OIL PROCESSING
☐ F. SOLVENT RECOVERY
☐ G. OTHER RECYCLING/RECOVERY
☐ H. OTHER ______ (Specify)

05 OTHER

☐ A. BUILDINGS ON SITE
NO

06 AREA OF SITE

2 +- (Acres)

07 COMMENTS

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)

☐ A. ADEQUATE, SECURE ☐ B. MODERATE ☒ C. INADEQUATE, POOR ☐ D. INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC.

During 1978 approximately 50 drums of contaminated wastes were buried on the Kennon site. Another 750 drums of the same wastes were poured into an old phosphate pit and several other 6' deep trenches. The pit and trenches both unlined were then covered with soil.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: ☐ YES ☐ NO
02 COMMENTS

VI. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)

Superfund file # 94508 — letter from Ralph Mosley, Genesco to Tom Tiesler Re: Off Site Disposal

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE: TN | 02 SITE NUMBER: 981473515

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as applicable)

	SURFACE	WELL
COMMUNITY	A. ☐	B. ☒
NON-COMMUNITY	C. ☐	D. ☐

02 STATUS

ENDANGERED	AFFECTED	MONITORED
A. ☒	B. ☐	C. ☐
D. ☐	E. ☐	F. ☐

03 DISTANCE TO SITE

A. 0 (1500 FT) (mi)
B. ______ (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)

☒ A. ONLY SOURCE FOR DRINKING
☐ B. DRINKING (Other sources available) COMMERCIAL, INDUSTRIAL, IRRIGATION (No other water sources available)
☐ C. COMMERCIAL, INDUSTRIAL, IRRIGATION (Limited other sources available)
☐ D. NOT USED, UNUSEABLE

02 POPULATION SERVED BY GROUND WATER 118

03 DISTANCE TO NEAREST DRINKING WATER WELL 0 (1500 FT) (mi)

04 DEPTH TO GROUNDWATER 30 (ft)

05 DIRECTION OF GROUNDWATER FLOW Southwesterly

06 DEPTH TO AQUIFER OF CONCERN 30 (ft)

07 POTENTIAL YIELD OF AQUIFER ______ (gpd)

08 SOLE SOURCE AQUIFER ☐ YES ☐ NO

09 DESCRIPTION OF WELLS (Including useage, depth, and location relative to population and buildings)

Domestic wells in the area are generally cased 20-25 (ft) into the bedrock with uncased open hole extending to depths of a few hundred ft to more than 2000 ft.

10 RECHARGE AREA
☐ YES ☐ NO COMMENTS

11 DISCHARGE AREA
☐ YES ☐ NO COMMENTS

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

☐ A. RESERVOIR, RECREATION DRINKING WATER SOURCE
☐ B. IRRIGATION, ECONOMICALLY IMPORTANT RESOURCES
☐ C. COMMERCIAL, INDUSTRIAL
☐ D. NOT CURRENTLY USED

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:	AFFECTED	DISTANCE TO SITE
Little Harpeth River	☐	______ (mi)
	☐	______ (mi)
	☐	______ (mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

No Demographics.

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE A. ______ NO. OF PERSONS
TWO (2) MILES OF SITE B. ______ NO. OF PERSONS
THREE (3) MILES OF SITE C. ______ NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION ______ (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE ______

04 DISTANCE TO NEAREST OFF-SITE BUILDING ______ (mi)

05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
TN	9814735 15

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE *(Check one)*

☐ A. $10^{-6} - 10^{-8}$ cm/sec ☐ B. $10^{-4} - 10^{-6}$ cm/sec ☐ C. $10^{-4} - 10^{-3}$ cm/sec ☐ D. GREATER THAN 10^{-3} cm/sec

02 PERMEABILITY OF BEDROCK *(Check one)*

$>10^{-3}$ cm/sec for Karst limestone

☐ A. IMPERMEABLE (Less than 10^{-6} cm/sec) ☒ B. RELATIVELY IMPERMEABLE ($10^{-4} - 10^{-6}$ cm/sec) ☐ C. RELATIVELY PERMEABLE ($10^{-2} - 10^{-4}$ cm/sec) ☐ D. VERY PERMEABLE (Greater than 10^{-2} cm/sec)

03 DEPTH TO BEDROCK	04 DEPTH OF CONTAMINATED SOIL ZONE	05 SOIL pH
15 (ft)	______ (ft)	______

06 NET PRECIPITATION	07 ONE YEAR 24 HOUR RAINFALL	08 SLOPE: SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
10 (in)	3′ (in)	3.3 %	SOUTH WEST	4 %

09 FLOOD POTENTIAL

SITE IS IN ______ YEAR FLOODPLAIN

10 ☐ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS *(5 acre minimum)*

✓ ESTUARINE NON Identified OTHER

A. ______ (mi) B. ______ (mi)

12 DISTANCE TO CRITICAL HABITAT *(of endangered species)*

NONE IDENTIFIED (mi)

ENDANGERED SPECIES: ______

13 LAND USE IN VICINITY

DISTANCE TO: ✓

COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS; NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES	AGRICULTURAL LANDS: PRIME AG LAND	AG LAND
A. ______ (mi)	B. ______ (mi)	C. ______ (mi)	D. ______ (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

The Kennon site is a 2+-acre parcel within the 146 acre property located in Rural Williamson county and owned by Emmett and Rose Kennon. This areas most important farming commodity is livestock. The fenced tract containing the disposal area is currently used as a pasture for cattle. The area (primarily along the Wilson Pike/Split Log Road) contains several old farm houses as well as several new residences. The residences are situated on four to ten acre tracts.

✓

VII. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

Superfund file # 94508

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
TN	9814 73515

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER	9	IT Corporation 5815 middlebrook Knoxville TN	INCLUDED REF (1)
SURFACE WATER			
WASTE	13	Specialized Assays, 206 12th ave S. Nashville Tn	Ref 1
AIR			
RUNOFF			
SPILL			
SOIL	4	IT Corporation, 5815 middlebrook Pike Knoxville Tn.	REF# 1
VEGETATION			
OTHER			

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS

IV. PHOTOGRAPHS AND MAPS NO PHOTOGRAPHS

01 TYPE ☐ GROUND ☐ AERIAL

02 IN CUSTODY OF ______ (Name of organization or individual)

03 MAPS ☑ YES ☐ NO

04 LOCATION OF MAPS Reference 13-14

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

✓

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Superfund central File # 94508

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 7 - OWNER INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
TN	9814 73515

II. CURRENT OWNER(S)

01 NAME	02 D+B NUMBER		
Emmett E Rose Kennon			
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE		
2934 Sidco Drive			
05 CITY	06 STATE	07 ZIP CODE	
Nashville	TN	37204	
01 NAME	02 D+B NUMBER		
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE		
05 CITY	06 STATE	07 ZIP CODE	
01 NAME	02 D+B NUMBER		
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE		
05 CITY	06 STATE	07 ZIP CODE	
01 NAME	02 D+B NUMBER		
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE		
05 CITY	06 STATE	07 ZIP CODE	

PARENT COMPANY (If applicable)

08 NAME	09 D+B NUMBER	
10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE	
12 CITY	13 STATE	14 ZIP CODE
08 NAME	09 D+B NUMBER	
10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE	
12 CITY	13 STATE	14 ZIP CODE
08 NAME	09 D+B NUMBER	
10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE	
12 CITY	13 STATE	14 ZIP CODE
08 NAME	09 D+B NUMBER	
10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE	
12 CITY	13 STATE	14 ZIP CODE

III. PREVIOUS OWNER(S) (List most recent first)

01 NAME	02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE
01 NAME	02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE
01 NAME	02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE

IV. REALTY OWNER(S) (If applicable: list most recent first)

01 NAME	02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE
01 NAME	02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE
01 NAME	02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

State Superfund file (commissioner's order) Deed of Record
FILE NO. 94-508

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 8 - OPERATOR INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
TN	981473515

II. CURRENT OPERATOR *(Provide if different from owner)*

01 NAME	02 D+B NUMBER
SAME AS OWNER	

03 STREET ADDRESS *(P.O. Box, RFD #, etc.)*	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER

OPERATOR'S PARENT COMPANY *(If applicable)*

10 NAME	11 D+B NUMBER

12 STREET ADDRESS *(P.O. Box, RFD #, etc.)*	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

III. PREVIOUS OPERATOR(S) *(List most recent first; provide only if different from owner)*

01 NAME	02 D+B NUMBER

03 STREET ADDRESS *(P.O. Box, RFD #, etc.)*	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

01 NAME	02 D+B NUMBER

03 STREET ADDRESS *(P.O. Box, RFD #, etc.)*	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

01 NAME	02 D+B NUMBER

03 STREET ADDRESS *(P.O. Box, RFD #, etc.)*	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

PREVIOUS OPERATORS' PARENT COMPANIES *(If applicable)*

10 NAME	11 D+B NUMBER

12 STREET ADDRESS *(P.O. Box, RFD #, etc.)*	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

10 NAME	11 D+B NUMBER

12 STREET ADDRESS *(P.O. Box, RFD #, etc.)*	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

10 NAME	11 D+B NUMBER

12 STREET ADDRESS *(P.O. Box, RFD #, etc.)*	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

IV. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
TN	981473515

II. ON-SITE GENERATOR

01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

III. OFF-SITE GENERATOR(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
GENESCO	TND001981240		
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
GENESCO PARK			

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE
NASHVILLE	TN	37202			

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

IV. TRANSPORTER(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
GENESCO	TND001367549		
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
GENESCO PARK			

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE
NASHVILLE	TN	37202			

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

GENESCO FILE #94 508 CENTRAL SUPERFUND FILES, NASHVILLE CENTRAL OFFICE

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
TN	981473515

II PAST RESPONSE ACTIVITIES *(Continued)*

01 [X] R. BARRIER WALLS CONSTRUCTED — 02 DATE JANUARY 1986 — 03 AGENCY DWER (GERAGHTY MILLER)
04 DESCRIPTION a continuous silt screen was constructed during 1/1986 along a fence directly downslope from the source area. screen was designed to prevent transport of contaminated sediment off site. REF #

01 ☐ S. CAPPING/COVERING — 02 DATE ______ — 03 AGENCY ______
04 DESCRIPTION

01 ☐ T. BULK TANKAGE REPAIRED — 02 DATE ______ — 03 AGENCY ______
04 DESCRIPTION

01 ☐ U. GROUT CURTAIN CONSTRUCTED — 02 DATE ______ — 03 AGENCY ______
04 DESCRIPTION

01 ☐ V. BOTTOM SEALED — 02 DATE ______ — 03 AGENCY ______
04 DESCRIPTION

01 ☐ W. GAS CONTROL — 02 DATE ______ — 03 AGENCY ______
04 DESCRIPTION

01 ☐ X. FIRE CONTROL — 02 DATE ______ — 03 AGENCY ______
04 DESCRIPTION

01 ☐ Y. LEACHATE TREATMENT — 02 DATE ______ — 03 AGENCY ______
04 DESCRIPTION

01 ☐ Z. AREA EVACUATED — 02 DATE ______ — 03 AGENCY ______
04 DESCRIPTION

01 ☐ 1. ACCESS TO SITE RESTRICTED — 02 DATE ______ — 03 AGENCY ______
04 DESCRIPTION

01 ☐ 2. POPULATION RELOCATED — 02 DATE ______ — 03 AGENCY ______
04 DESCRIPTION

01 [X] 3. OTHER REMEDIAL ACTIVITIES — 02 DATE ______ — 03 AGENCY ______
04 DESCRIPTION

Geraghty & Miller was retained by Genesco in June 1986 to conduct a groundwater investigation of the Kennon site. Preliminary investigations have been made by Geological associates and the State Superfund program. The USGS is presently conducting a Regional Study of the area. REF #

Municipal water lines are being constructed in the community to all houses identified in the area as using groundwater. Ref #

III. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

Superfund Central File 94-508

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
TN	981473515

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION [X] YES [ ] NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

State of Tennessee issued Commissioners order to Emmett & Rose Kennon 2934 Sidco Drive Nashville Tn, 37204 and To Genesco Inc, (agent for service of process, W.C. Oconnor Genesco Park, Nashville Tenn. 37202. The order stipulates that the Respondents address the following:

A. Immediate Remedial measures.
B. Initial assessment
C - Investigation program
D - Remedial action selection and Implementation
E - Site monitoring & maintenance.

Ref # 15

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

State Superfund file 94580 Commissioners order

EPA FORM 2070-13 (7-81)

REF. 1

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

5815 Middlebrook Pike • Knoxville, Tennessee 37921 • 615-588-6401

CERTIFICATE OF ANALYSIS

TO: IT Corporation
ATTN: Cliff Vaughan
312 Directors Drive
Knoxville, TN 37923

DATE REPORTED: February 6, 1986
PROJECT CODE: ITEK 21683
ORDER NUMBER: TN Contract FA-1353

Sample Description: Kennon Site Pit A, 1-22-86, 1:30

VOLATILE ORGANIC PRIORITY POLLUTANT ANALYSIS

Compound	Concentration (ppb)	Compound	Concentration (ppb)
acrolein	ND	1,1-dichloroethene	290.
acrylonitrile	ND	trans-1,2-dichloroethene	3,000.
benzene	200.	1,2-dichloropropane	ND
bromodichloromethane	ND	cis-1,3-dichloropropene	ND
bromoform	ND	trans-1,3-dichloropropene	ND
bromomethane	ND	ethyl benzene	300.
carbon tetrachloride	ND	methylene chloride	340.
chlorobenzene	14.	1,1,2,2-tetrachloroethane	ND
chloroethane	750.	tetrachloroethene	110.
2-chloroethylvinyl ether	ND	toluene	120,000.
chloroform	ND	1,1,1-trichloroethane	2,000.
chloromethane	ND	1,1,2-trichloroethane	ND
dibromochloromethane	ND	trichloroethene	75.
1,1-dichloroethane	4,300.	vinyl chloride	<10.
1,2-dichloroethane	1,200.		

Remarks: ND = Not detected.
<10. = Detected but at a level less than the quantitation limit. (Numerical value is the quantitation limit.)

Sworn to and subscribed before me this 6th
day of February, 1986
My commission expires January 16, 1988

James T. Atwell
Notary Public

Approved by

Laboratory Manager
Title

53-9-85

IT CORPORATION

ANALYTICAL SERVICES

5815 Middlebrook Pike • Knoxville, Tennessee 379[illegible] • 615-588-64[illegible]

CERTIFICATE OF ANALYSIS

TO: IT Corporation
ATTN: Cliff Vaughan
312 Directors Drive
Knoxville, TN 37923

DATE REPORTED: February 6, 1986
PROJECT CODE: ITEK 21683
ORDER NUMBER: TN Contract FA-1353

Sample Description: Kennon Site Pit B, Grab Soil, 1-22-86, 11:30

VOLATILE ORGANIC PRIORITY POLLUTANT ANALYSIS

Compound	Concentration (ppb)	Compound	Concentration (ppb)
acrolein	ND	1,1-dichloroethene	3,300.
acrylonitrile	ND	trans-1,2-dichloroethene	1,300.
benzene	1,000.	1,2-dichloropropane	ND
bromodichloromethane	ND	cis-1,3-dichloropropene	ND
bromoform	ND	trans-1,3-dichloropropene	ND
bromomethane	ND	ethyl benzene	19,000.
carbon tetrachloride	ND	methylene chloride	3,300.
chlorobenzene	530.	1,1,2,2-tetrachloroethane	ND
chloroethane	ND	tetrachloroethene	220,000.
2-chloroethylvinyl ether	ND	toluene	6,200,000.
chloroform	<250.	1,1,1-trichloroethane	160,000.
chloromethane	ND	1,1,2-trichloroethane	ND
dibromochloromethane	ND	trichloroethene	6,900.
1,1-dichloroethane	950.	vinyl chloride	ND
1,2-dichloroethane	11,000.		

Remarks: ND = Not detected.
<250. = Detected but at a level less than the quantitation limit. (Numerical value is the quantitation limit.)

Sworn to and subscribed before me this 6th
day of February, 1986
My commission expires January 16, 1988

Notary Public

Approved By

Laboratory Manager

Title

93-6-85

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

5815 Middlebrook Pike • Knoxville, Tennessee 37921 • 615 ... 6401

CERTIFICATE OF ANALYSIS

TO: IT Corporation
ATTN: Cliff Vaughan
312 Directors Drive
Knoxville, TN 37923

DATE REPORTED: February 10, 1986
PROJECT CODE: ITEK 21702
ORDER NUMBER: TN Contract FA-1313

Sample Description: Two (2) water samples and one (1) soil sample received January 29, 1986

Concentration units are mg/liter (ppm) unless otherwise stated

PRIORITY POLLUTANT METALS

Kennon Site, 1-28-86

	Field #1 Hackett Spring 9:15	Field #3, Seep (water) 10:30	Field #3, Seep (soil) 10:30 (ug/gram, ppm)
Antimony	<0.001	<0.002*	<0.05
Arsenic	<0.001	0.217	18.
Beryllium	<0.002	0.010	0.69
Cadmium	<0.001	<0.001	<0.03
Chromium	<0.01	0.15	9.3
Copper	<0.002	0.088	6.5
Lead	<0.01	0.12	7.6
Mercury	<0.001	<0.001	0.048
Nickel	<0.01	<0.01	8.3
Selenium	<0.001	<0.03*	<0.3*
Silver	<0.002	<0.002	<0.1
Thallium	<0.02	<0.02	<0.6
Zinc	<0.001	0.519	30.
Cyanide	<0.01	0.01	0.20

* Detection limits higher than normal due to sample matrix interferences.

Copy to: Ronnie Bowers
Tennessee Department of Health & Environment
Division of Solid Waste Management
701 Broadway Street, 4th Floor Customs House
Nashville, TN 37219-5403

Sworn to and subscribed before me this 10th
day of February, 1986
My commission expires January 16, 1988

Notary Public

Approved by

Laboratory Director
Title

93-9-85

...TIONAL
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CORPORATION

A... ...CAL
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5815 Middlebrook Pike • K... ...ssee 37921 • 615 588 6401

CERTIFICATE OF ANALYSIS

TO: IT Corporation
ATTN: Cliff Vaughan
312 Directors Drive
Knoxville, TN 37923

DATE REPORTED: February 10, 1986
PROJECT CODE: ITEK 21702
ORDER NUMBER: TN Contract FA-1353

Sample Description: Kennon Site, Field #1, Hackett Spring, 1-28-86, 9:15

VOLATILE ORGANIC PRIORITY POLLUTANT ANALYSIS

Compound	Concentration (ppb)	Compound	Concentration (ppb)
acrolein	ND	1,1-dichloroethene	ND
acrylonitrile	ND	trans-1,2-dichloroethene	10.
benzene	ND	1,2-dichloropropane	ND
bromodichloromethane	ND	cis-1,3-dichloropropene	ND
bromoform	ND	trans-1,3-dichloropropene	ND
bromomethane	ND	ethyl benzene	ND
carbon tetrachloride	ND	methylene chloride	ND
chlorobenzene	ND	1,1,2,2-tetrachloroethane	ND
chloroethane	ND	tetrachloroethene	ND
2-chloroethylvinyl ether	ND	toluene	ND
chloroform	ND	1,1,1-trichloroethane	ND
chloromethane	ND	1,1,2-trichloroethane	ND
dibromochloromethane	ND	trichloroethene	ND
1,1-dichloroethane	<10.	vinyl chloride	ND
1,2-dichloroethane	ND		

Remarks: ND = Not detected.
<10. = Detected but at a level less than the quantitation limit. (Numerical value is the quantitation limit.)

Copy to: Ronnie Bowers
Tennessee Department of Health & Environment
Division of Solid Waste Management
701 Broadway Street, 4th Floor Customs House
Nashville, TN 37219-5403

Sworn to and subscribed before me this 10th day of February, 1986
My commission expires January 16, 1988

Notary Public

Approved by Laboratory Director
Title

NATIONAL
NOLOGY
CORPORATION

ANALYTICAL
SERVICES

5815 Middlebrook Pike • Knoxville, Tennessee 37921 • 615-588-6401

FEB 14 1986

CERTIFICATE OF ANALYSIS

TO: IT Corporation
ATTN: Cliff Vaughan
312 Directors Drive
Knoxville, TN 37923

DATE REPORTED: February 11, 1986
PROJECT CODE: ITEK 21765
ORDER NUMBER: TN Contract FA-1363
Job #41504

Sample Description: Kennon Site, Hacket Spring, Field #1, 2-7-86, 9:00

VOLATILE ORGANIC PRIORITY POLLUTANT ANALYSIS

Compound	Concentration (ppb)	Compound	Concentration (ppb)
acrolein	ND	1,1-dichloroethene	ND
acrylonitrile	ND	trans-1,2-dichloroethene	70.
benzene	ND	1,2-dichloropropane	ND
bromodichloromethane	ND	cis-1,3-dichloropropene	ND
bromoform	ND	trans-1,3-dichloropropene	ND
bromomethane	ND	ethyl benzene	ND
carbon tetrachloride	ND	methylene chloride	ND
chlorobenzene	ND	1,1,2,2-tetrachloroethane	ND
chloroethane	<10.	tetrachloroethene	ND
2-chloroethylvinyl ether	ND	toluene	ND
chloroform	ND	1,1,1-trichloroethane	13.
chloromethane	ND	1,1,2-trichloroethane	ND
dibromochloromethane	ND	trichloroethene	<10.
1,1-dichloroethane	26.	vinyl chloride	ND
1,2-dichloroethane	<10.		

Remarks: ND = Not detected.
<10. = Detected but at a level less than the quantitation limit. (Numerical value is the quantitation limit.)

Copy to: Ronnie Bowers
Tennessee Department of Health & Environment
Division of Solid Waste Management
701 Broadway Street, 4th Floor Customs House
Nashville, TN 37219-5403

Sworn to and subscribed before me this 11th
day of February, 1986
My commission expires January 15, 1988

Notary Public

Approved by

Laboratory Manager
Title

93-9-85

AN[illegible] [illegible]TIC[illegible]L SERVICE

5815 Middlebrook Pike • Knoxville, Tennessee 37921 • 615-588-6401

CERTIFICATE OF ANALYSIS

TO: IT Corporation
ATTN: Cliff Vaughan
312 Directors Drive
Knoxville, TN 37923

DATE REPORTED: February 26, 1986
PROJECT CODE: ITEK 21854
ORDER NUMBER: TN Contract FA-1353

Sample Description: Kennon Site, Field #17, Well #8, 2-21-86, 10:30

VOLATILE ORGANIC PRIORITY POLLUTANT ANALYSIS

Compound	Concentration (ppb)	Compound	Concentration (ppb)
acrolein	ND	1,1-dichloroethene	13.
acrylonitrile	ND	trans-1,2-dichloroethene	350.
benzene	<10.	1,2-dichloropropane	ND
bromodichloromethane	ND	cis-1,3-dichloropropene	ND
bromoform	ND	trans-1,3-dichloropropene	ND
bromomethane	ND	ethyl benzene	<10.
carbon tetrachloride	ND	methylene chloride	<10.
chlorobenzene	ND	1,1,2,2-tetrachloroethane	ND
chloroethane	370.	tetrachloroethene	<10.
2-chloroethylvinyl ether	ND	toluene	1,600.
chloroform	<10.	1,1,1-trichloroethane	57.
chloromethane	ND	1,1,2-trichloroethane	ND
dibromochloromethane	ND	trichloroethene	ND
1,1-dichloroethane	200.	vinyl chloride	ND
1,2-dichloroethane	22.		

Remarks: ND = Not detected.
<10. = Detected but at a level less than the quantitation limit. (Numerical value is the quantitation limit.)

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Tennessee Department of Health & Environment
Division of Solid Waste Management
701 Broadway Street, 4th Floor Customs House
Nashville, TN 37219-5403

Sworn to and subscribed before me this 26th
day of February, 1986
My commission expires January 16, 1988

Notary Public

Approved by

Laboratory Manager

Title

83-9-85

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CERTIFICATE OF ANALYSIS

TO: IT Corporation
ATTN: Cliff Vaughan
312 Directors Drive
Knoxville, TN 37923

DATE REPORTED: March 18, 1986
PROJECT CODE: ITEK 21983
ORDER NUMBER: TN Contract FA-1353

Sample Description: Field #50, Kennon Site, Myatt Well, 3-13-86, 9:20

VOLATILE ORGANIC PRIORITY POLLUTANT ANALYSIS

Compound	Concentration (ppb)	Compound	Concentration (ppb)
acrolein	ND	1,1-dichloroethene	ND
acrylonitrile	ND	trans-1,2-dichloroethene	ND
benzene	ND	1,2-dichloropropane	ND
bromodichloromethane	ND	cis-1,3-dichloropropene	ND
bromoform	ND	trans-1,3-dichloropropene	ND
bromomethane	ND	ethyl benzene	ND
carbon tetrachloride	ND	methylene chloride	ND
chlorobenzene	ND	1,1,2,2-tetrachloroethane	ND
chloroethane	ND	tetrachloroethene	ND
2-chloroethylvinyl ether	ND	toluene	ND
chloroform	ND	1,1,1-trichloroethane	ND
chloromethane	ND	1,1,2-trichloroethane	ND
dibromochloromethane	ND	trichloroethene	ND
1,1-dichloroethane	ND	vinyl chloride	ND
1,2-dichloroethane	ND		

Remarks: ND = Not detected.
<10. = Detected but at a level less than the quantitation limit. (Numerical value is the quantitation limit.)

Copy to: Ronnie Bowers
Tennessee Department of Health & Environment
Division of Solid Waste Management
701 Broadway Street, 4th Floor Customs House
Nashville, TN 37219-5403

Sworn to and subscribed before me this 18th
day of March, 1986
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Laboratory Manager
Title

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ANALYTICAL SERVICES

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CERTIFICATE OF ANALYSIS

TO: IT Corporation
ATTN: Cliff Vaughan
312 Directors Drive
Knoxville, TN 37923

DATE REPORTED: March 25, 1986
PROJECT CODE: ITEK 22002
ORDER NUMBER: TN Contract FA-1353

Sample Description: Kennon Site, Hackett Spring, 3-13-86, 2:00

VOLATILE ORGANIC PRIORITY POLLUTANT ANALYSIS

Compound	Concentration (ppb)	Compound	Concentration (ppb)
acrolein	ND	1,1-dichloroethene	ND
acrylonitrile	ND	trans-1,2-dichloroethene	66.
benzene	ND	1,2-dichloropropane	ND
bromodichloromethane	ND	cis-1,3-dichloropropene	ND
bromoform	ND	trans-1,3-dichloropropene	ND
bromomethane	ND	ethyl benzene	ND
carbon tetrachloride	ND	methylene chloride	ND
chlorobenzene	ND	1,1,2,2-tetrachloroethane	ND
chloroethane	<10.	tetrachloroethene	ND
2-chloroethylvinyl ether	ND	toluene	ND
chloroform	ND	1,1,1-trichloroethane	22.
chloromethane	ND	1,1,2-trichloroethane	ND
dibromochloromethane	ND	trichloroethene	<10.
1,1-dichloroethane	26.	vinyl chloride	ND
1,2-dichloroethane	<10.		

Remarks: ND = Not detected.
<10. = Detected but at a level less than the quantitation limit. (Numerical value is the quantitation limit.)

Copy to: Ronnie Bowers
Tennessee Department of Health & Environment
Division of Solid Waste Management
701 Broadway Street, 4th Floor Customs House
Nashville, TN 37219-5403

Sworn to and subscribed before me this 25th
day of March, 1986
My commission expires January 16, 1988

Notary Public

Approved by

Laboratory Manager

Title

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83-6-85

SERVICES R03

5815 Middlebrook Pike • Knoxville, Tennessee 37921 • 615 588-6401

CERTIFICATE OF ANALYSIS

TO: IT Corporation
ATTN: Cliff Vaughan
312 Directors Drive
Knoxville, TN 37923

DATE REPORTED: April 1, 1986
PROJECT CODE: ITEK 22038
ORDER NUMBER: TN Contract 74-1353
Job #409374.01.71.89

Sample Description: Field #61, Kennon Site, Hackett Sp., 3-19-86, 2:15

VOLATILE ORGANIC PRIORITY POLLUTANT ANALYSIS

Compound	Concentration (ppb)	Compound	Concentration (ppb)
acrolein	ND	1,1-dichloroethene	ND
acrylonitrile	ND	trans-1,2-dichloroethene	41.
benzene	ND	1,2-dichloropropane	ND
bromodichloromethane	ND	cis-1,3-dichloropropene	ND
bromoform	ND	trans-1,3-dichloropropene	ND
bromomethane	ND	ethyl benzene	ND
carbon tetrachloride	ND	methylene chloride	<10.
chlorobenzene	ND	1,1,2,2-tetrachloroethane	ND
chloroethane	<10.	tetrachloroethene	ND
2-chloroethylvinyl ether	ND	toluene	ND
chloroform	ND	1,1,1-trichloroethane	17.
chloromethane	ND	1,1,2-trichloroethane	ND
dibromochloromethane	ND	trichloroethene	<10.
1,1-dichloroethane	24.	vinyl chloride	ND
1,2-dichloroethane	ND		

Remarks: ND = Not detected.
<10. = Detected but at a level less than the quantitation limit. (Numerical value is the quantitation limit.)

Copy to: Ronnie Bowers
Tennessee Department of Health & Environment
Division of Solid Waste Management
701 Broadway Street, 4th Floor Customs House
Nashville, TN 37219-5403

Sworn to and subscribed before me this 1st day of April, 1986
My commission expires January 16, 1988

Notary Public

Approved by

Laboratory Manager

Title

93-9-85

ORGANIC LABORATORY ANALYSIS REPORT

Field Log No. ____________ Sampling Agency SWM

Laboratory
Sample No. Ø-1787 H Date Collected 3-[illegible]-86 Date Received: 3-20-[illegible]

Sampled Collected By: RLB Date Completed 3-21-[illegible]

Sample Source & Identification: [illegible] Site Hackett Spring Field # [illegible]

Grab Water Williamson Co.

State Superfund

HALOGENATED VOLATILE ORGANIC ANALYSIS

A 5.0 ML. SAMPLE FROM A SPECIALLY PREPARED VOA BOTTLE IS PURGED ONTO A TENAX TRA[P] USING ULTRA HIGH PURITY HELIUM. THE TRAP IS THEN DESORBED TO A TRACOR [illegible] G.C. AND ANALYZED USING A HALL 700A ELECTROCONDUCTIVITY DETECTOR IN THE CHLORI[NE] MODE.

COLUMN:	1% SP-1000/CARBOPACK B
STARTING TEMP:	[illegible]°C
INITIAL HOLD:	4 MIN.
PROGRAM RATE:	8° PER MIN.
FINAL TEMP:	200°C
FINAL HOLD:	[illegible] MIN.

COMPOUND	RESULTS (ppb)	COMPOUND	RESULTS (ppb)
Chloromethane	NA	Dibromochloromethane	NA
Bromomethane	NA	1,1,2-Trichloroethane	NA
Vinyl Chloride	NA	Bromoform	NA
Chloroethane	NA	1,1,2,2-Tetrachloroethylene	[illegible]
Methylene Chloride	0.8	1,1,2,2-Tetrachloroethane	[illegible]
1,1-Dichloroethylene	0.6	Chlorobenzene	NA
Bromochloromethane	ND		
1,1-Dichloroethane	24.3		
Trans-1,2-Dichloroethylene	43.8		
Chloroform	ND		
1,2-Dichloroethane	1.8		
1,1,1-Trichloroethane	18.6		
Carbon Tetrachloride	NA		
Bromodichloromethane	NA		
Trichloroethylene	4.6		

Remarks: ND = none detected; NA = not analyzed, instrument unable to [illegible]

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

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CERTIFICATE OF ANALYSIS

TO: IT Corporation
ATTN: Cliff Vaughan
312 Directors Drive
Knoxville, TN 37923

DATE REPORTED: June 10, 1986
PROJECT CODE: ITEK 22457
ORDER NUMBER: TN Contract FA-1353
PAGE 5 OF 5
Job #409374.01.71.89

Sample Description: Kennon Site, Field #99, Genesco Well #9, 5-31-86, 9:40

VOLATILE ORGANIC PRIORITY POLLUTANT ANALYSIS

Compound	Concentration (ppb)	Compound	Concentration (ppb)
benzene	ND	1,1-dichloroethene	ND
bromodichloromethane	ND	trans-1,2-dichloroethene	2,000.
bromoform	ND	1,2-dichloropropane	ND
bromomethane	ND	cis-1,3-dichloropropene	ND
carbon tetrachloride	ND	trans-1,3-dichloropropene	ND
chlorobenzene	ND	ethyl benzene	ND
chloroethane	1,200.	methylene chloride	ND
2-chloroethylvinyl ether	ND	1,1,2,2-tetrachloroethane	ND
chloroform	ND	tetrachloroethene	ND
chloromethane	ND	toluene	39,000.
dibromochloromethane	ND	1,1,1-trichloroethane	<1,000.
1,1-dichloroethane	1,600.	1,1,2-trichloroethane	ND
1,2-dichloroethane	<1,000.	trichloroethene	ND
		vinyl chloride	ND

Remarks: ND = Not detected.
<1,000. = Detected but at a level less than the quantitation limit. (Numerical value is the quantitation limit.)

Copy to: Ronnie Bowers
Tennessee Department of Health & Environment
Division of Solid Waste Management
701 Broadway Street, 4th Floor Customs House
Nashville, TN 37219-5403

Sworn to and subscribed before me this 10th day of June, 1986
My commission expires January 16, 1988

[signature]
Notary Public

[signature]
Approved by
Laboratory Manager
Title

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

5815 Middlebrook Pike • Knoxville Tennessee 37921 • 615 588 6401

CERTIFICATE OF ANALYSIS

TO: IT Corporation
ATTN: Cliff Vaughan
312 Directors Drive
Knoxville, TN 37923

DATE REPORTED: February 10, 1986
PROJECT CODE: ITEK 21702
ORDER NUMBER: TN Contract FA-1353

Sample Description: Two (2) water samples and one (1) soil sample received January 29, 1986

Concentration units are mg/liter (ppm) unless otherwise stated

PRIORITY POLLUTANT METALS

	Kennon Site, 1-28-86		
	Field #1 Hackett Spring 9:15	Field #3, Seep (water) 10:30	Field #3, Seep (soil) 10:30 (ug/gram, ppm)
Antimony	<0.001	<0.002*	<0.05
Arsenic	<0.001	0.217	18.
Beryllium	<0.002	0.010	0.69
Cadmium	<0.001	<0.001	<0.03
Chromium	<0.01	0.15	9.3
Copper	<0.002	0.088	6.5
Lead	<0.01	0.12	7.6
Mercury	<0.001	<0.001	0.048
Nickel	<0.01	<0.01	8.3
Selenium	<0.001	<0.03*	<0.3*
Silver	<0.002	<0.002	<0.1
Thallium	<0.02	<0.02	<0.6
Zinc	<0.001	0.519	30.
Cyanide	<0.01	0.01	0.20

* Detection limits higher than normal due to sample matrix interferences.

Copy to: Ronnie Bowers
Tennessee Department of Health & Environment
Division of Solid Waste Management
701 Broadway Street, 4th Floor Customs House
Nashville, TN 37219-5403

Sworn to and subscribed before me this 10th day of February, 1986
My commission expires January 16, 1988

Notary Public

Approved by

Laboratory Director
Title

93-9-85

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

5815 Middlebrook Pike • Knoxville, Tennessee 37921 • 615 588 6401

CERTIFICATE OF ANALYSIS

TO: IT Corporation
ATTN: Cliff Vaughan
312 Directors Drive
Knoxville, TN 37923

DATE REPORTED: February 6, 1986
PROJECT CODE: ITEK 21683
ORDER NUMBER: TN Contract FA- 1353

Sample Description: Two (2) soil samples and one (1) waste sample received January 24, 1986

Concentration units are μg/gram (ppm)

PRIORITY POLLUTANT METALS

	Grab Waste Pit B 1-22-86, 11:30	Pit A 1-22-86, 1:30	Pit B 1-22-86, 11:30
Antimony	0.10	<0.1	<0.1
Arsenic	<0.1	9.0	9.0
Beryllium	<0.1	1.2	1.1
Cadmium	0.25	<0.1	<0.1
Chromium	14.	14.	14.
Copper	0.80	7.5	4.4
Lead	1.2	8.0	8.2
Mercury	<0.1	<0.1	0.12
Nickel	<0.7	11.	7.3
Selenium	<0.8	<1.	<1.
Silver	<0.1	<0.2	<0.2
Thallium	<1.	<2.	<2.
Zinc	560.	33.	37.
Total Cyanide	0.07	0.10	0.26

Sworn to and subscribed before me this 6th day of February, 1986
My commission expires January 16, 1988

Notary Public

Approved by: Laboratory Manager
Title

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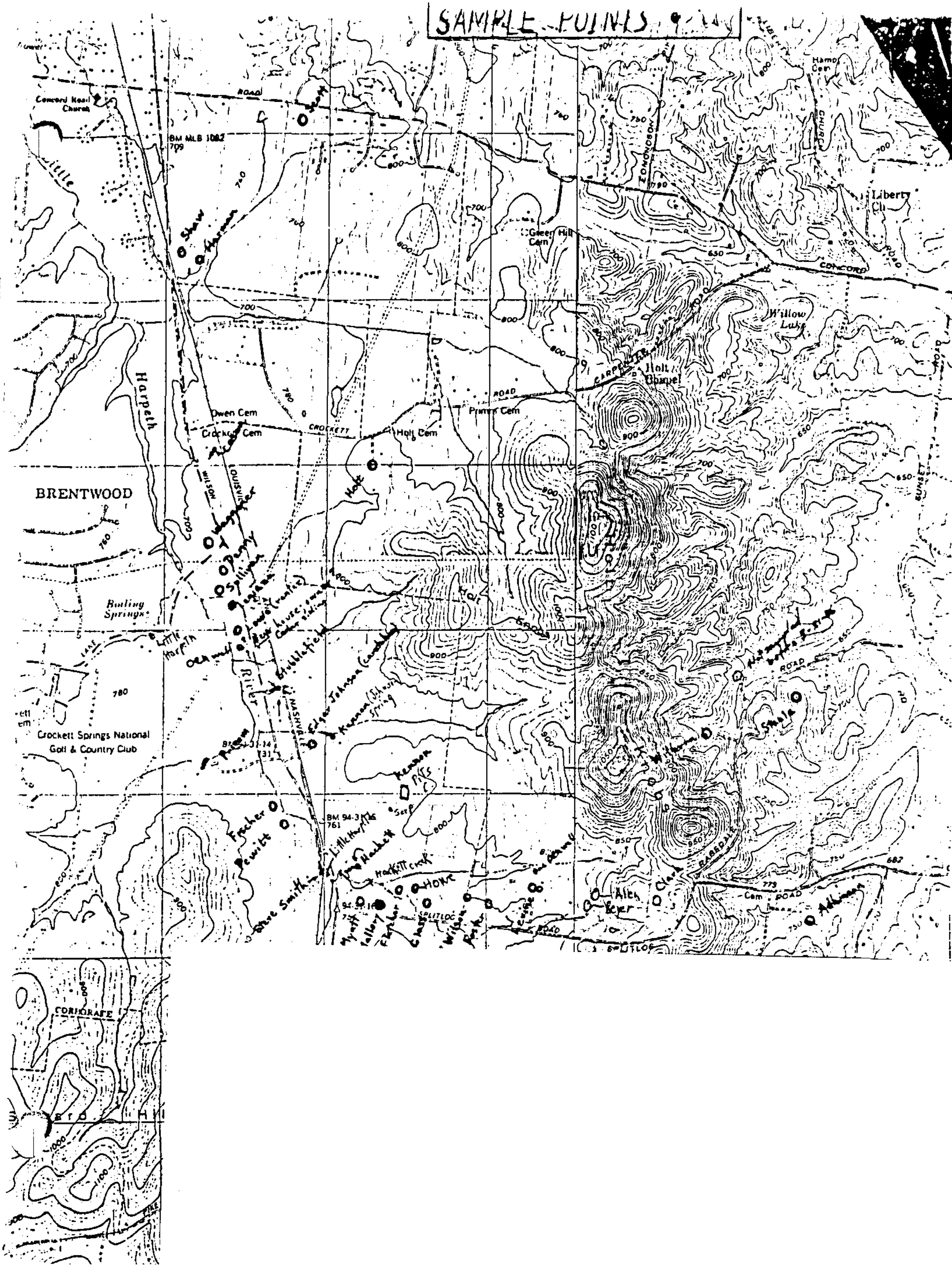
93-9-85

SAMPLE POINTS



GERAGHTY & MILLER, INC.

APPENDIX A

RESULTS OF SAMPLE ANALYSES OF INSPECTION PITS AND ON-SITE SEEP, JANUARY 1986

Includes samples taken by [illegible] associates
and those taken by TDHE on Jan 21, 22, 23.

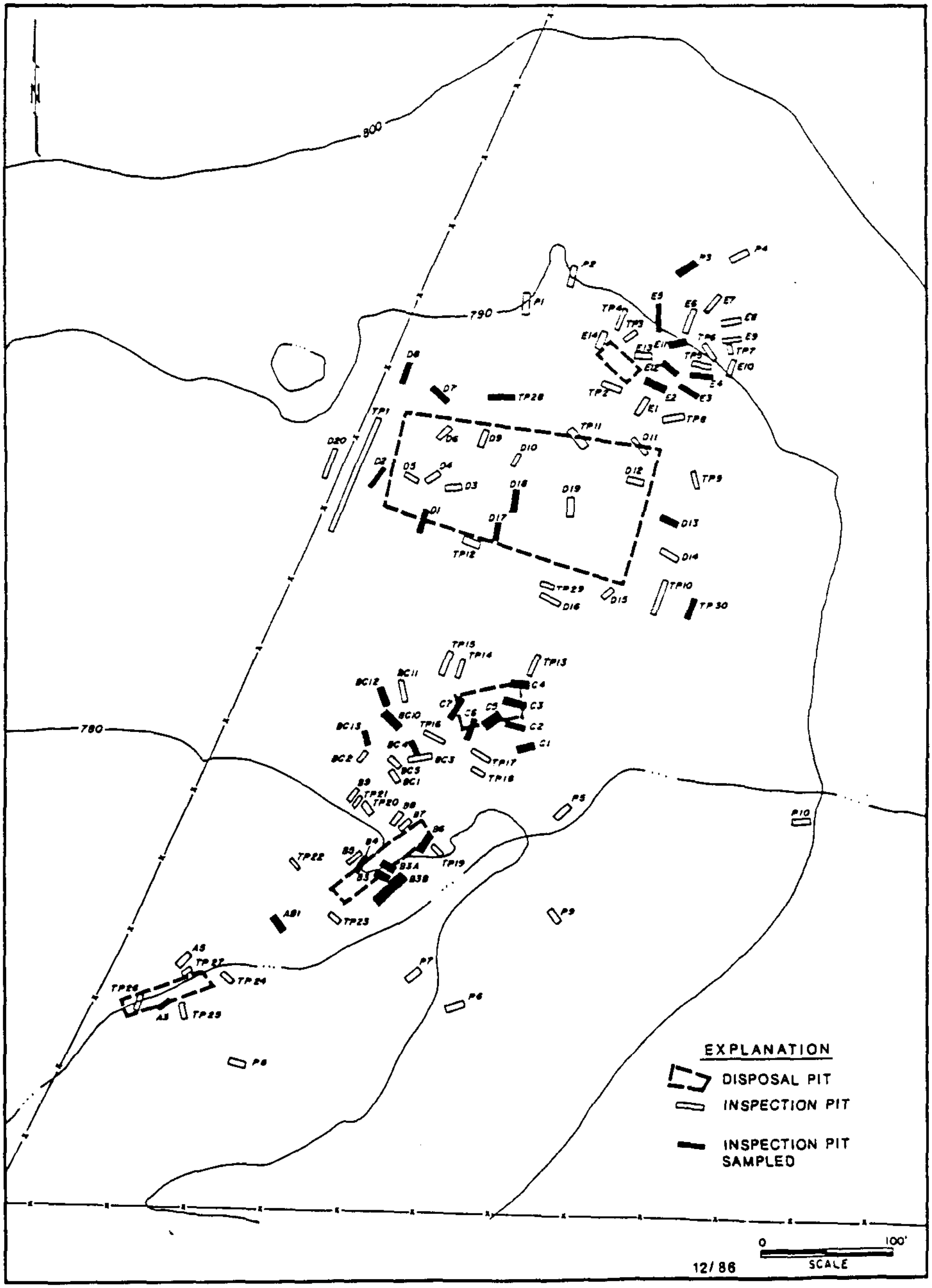


FIGURE 5. INSPECTION PITS

Geraghty & Miller, Inc.

SOIL, SLUDGE AND SEMI SOLID WASTE

SAMPLING POINT	PIT B	PIT B	PIT B	PIT B	PIT D	PIT A	PIT A	KNN	SEEP
SAMPLE TYPE	SOIL	SOIL	WASTE	WASTE	SOIL	SOIL	SOIL	SOIL	
LABORATORY	IT	IT	IT	IT	IT	IT	IT	IT	
SAMPLED BY	TDHE	TDHE	TDHE	TDHE	TDHE	TDHE	TDHE	TDHE	
DATE SAMPLED	22-Jan-86	22-Jan-86	22-Jan-86	22-Jan-86	22-Jan-86	22-Jan-86	22-Jan-86	28-Jan-86	
ACID EXTRACTABLE ORGANICS (PPM)									
2-CHLOROPHENOL	ND		ND		ND	ND	ND	ND	
2,4-DICHLOROPHENOL	ND		ND		ND	ND	ND	ND	
2,4-DIMETHYLPHENOL	ND		ND		ND	ND	ND	ND	
4,6-DINITRO-O-CRESOL	ND		ND		ND	ND	ND	ND	
2,4-DINITROPHENOL	ND		ND		ND	ND	ND	ND	
2-NITROPHENOL	ND		ND		ND	ND	ND	ND	
4-NITROPHENOL	ND		ND		ND	ND	ND	ND	
P-CHLORO-M-CRESOL	ND		ND		ND	ND	ND	ND	
PENTACHLOROPHENOL	ND		ND		ND	ND	ND	ND	
PHENOL	ND		ND		ND	ND	ND	ND	
2,4,6-TRICHLOROPHENOL	ND		ND		ND	ND	ND	ND	

Geraghty & Miller, Inc.

SOIL, SLUDGE AND SEMI SOLID WASTE

SAMPLING POINT	PIT B	PIT B	PIT 3	PIT B	PIT D	PIT A	PIT A	KNN	SEEP
SAMPLE TYPE	SOIL	SOIL	WASTE	WASTE	SOIL	SOIL	SOIL	SOIL	
LABORATORY	IT	IT	IT	IT	IT	IT	IT	IT	
SAMPLED BY	TDHE	TDHE	TDHE	TDHE	TDHE	TDHE	TDHE	TDHE	
DATE SAMPLED	22-Jan-86	22-Jan-86	22-Jan-86	22-Jan-86	22-Jan-86	22-Jan-86	22-Jan-86	28-Jan-86	
BASE NEUTRAL EXTRACTABLES (CONT.)									
ENDRIN ALDEHYDE	ND		ND		ND	ND	ND	ND	
FLUORANTHENE	ND		ND		ND	ND	ND	ND	
FLUORENE	ND		ND		ND	ND	ND	ND	
HEPTACHLOR	ND		ND		ND	ND	ND	ND	
HEPTACHLOR EPOXIDE	ND		ND		ND	ND	ND	ND	
HEXACHLOROBENZENE	ND		ND		ND	ND	ND	ND	
HEXACHLOROCYCLOPENTADIENE	ND		ND		ND	ND	ND	ND	
HEXACHLOROBUTADIENE	ND		ND		ND	ND	ND	ND	
HEXACHLOROETHANE	ND		ND		ND	ND	ND	ND	
INDENO(1,2,3-cd)PYRENE	ND		ND		ND	ND	ND	ND	
ISOPHORONE	ND		ND		ND	ND	ND	ND	
NAPTHALENE	<1.00		110.000		ND	ND	ND	ND	
NITROBENZENE	ND		ND		ND	ND	ND	ND	
N-NITROSODIMETHYLAMINE	ND		ND		ND	ND	ND	ND	
N-NITROSODIPHENYLAMINE	ND		<100.0		ND	ND	ND	ND	
N-NITROSODI-N-PROPYLAMINE	ND		ND		ND	ND	ND	ND	
PCB-1016	ND		ND		ND	ND	ND	ND	
PCB-1221	ND		<4.00		ND	ND	ND	ND	
PCB-1232	ND		ND		ND	ND	ND	ND	
PCB-1242	ND		ND		ND	ND	ND	ND	
PCB-1248	ND		ND		ND	ND	ND	ND	
PCB-1254	ND		ND		ND	ND	ND	ND	
PCB-1260	ND		ND		ND	ND	ND	ND	
PHENANTHRENE	ND		ND		ND	ND	ND	ND	
PYRENE	ND		ND		ND	ND	ND	ND	
TOXAPHENE	ND		ND		ND	ND	ND	ND	
1,2,4,-TRICHLOROBENZENE	ND		ND		ND	ND	ND	ND	
METHOXYCHLOR	ND		ND		ND	ND	ND	ND	

Geraghty & Miller, Inc.

SOIL, SLUDGE AND SEMI SOLID WASTE

SAMPLING POINT	PIT B	PIT B	PIT B	PIT B	PIT D	PIT A	PIT A	KNN SEEP
SAMPLE TYPE	SOIL	SOIL	WASTE	WASTE	SOIL	SOIL	SOIL	SOIL
LABORATORY	IT	IT	IT	IT	IT	IT	IT	IT
SAMPLED BY	TDHE	TDHE	TDHE	TDHE	TDHE	TDHE	TDHE	TDHE
DATE SAMPLED	22-Jan-86	22-Jan-86	22-Jan-86	22-Jan-86	22-Jan-86	22-Jan-86	22-Jan-86	23-Jan-86
BASE/NEUTRAL EXTRACTABLES (PPM)								
ACENAPHTHENE	ND		ND		ND	ND	ND	ND
ACENAPHTHYLENE	ND		ND		ND	ND	ND	ND
ANTHRACENE	ND		ND		ND	ND	ND	ND
ALDRIN	ND		ND		ND	ND	ND	ND
BENZO(a)ANTHRACENE	ND		ND		ND	ND	ND	ND
BENZO(b)FLUORATHENE								
BENZO(k)FLUORATHENE	ND		ND		ND	ND	ND	ND
BENZO(a)PYRENE	ND		ND		ND	ND	ND	ND
BENZO(ghi)PERYLENE	ND		ND		ND	ND	ND	ND
ALPHA-BHC	ND		ND		ND	ND	ND	ND
BETA-BHC	ND		ND		ND	ND	ND	ND
GAMMA-BHC	ND		ND		ND	ND	ND	ND
DELTA-BHC	ND		ND		ND	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND		ND		ND	ND	ND	ND
BIS(2-CHLOROETHOXY)METHANE	ND		ND		ND	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	4.500		940,000		ND	ND	ND	<1.00
BIS(CHLOROMETHYL) ETHER	ND		ND		ND	ND	ND	ND
BIS(2-CHLOROISOPROPYL)ETHER	ND		ND		ND	ND	ND	ND
4-BROMOPHENYL PHENYL ETHER	ND		ND		ND	ND	ND	ND
BUTLY BENZYLPHTHALATE	ND		ND		ND	ND	ND	ND
CHLORODANE	ND		ND		ND	ND	ND	ND
2-CHLORONAPTHALENE	ND		ND		ND	ND	ND	ND
4-CHLOROPHENYL PHENYL ETHER	ND		ND		ND	ND	ND	ND
CHRYSENE	ND		ND		ND	ND	ND	ND
4,4'-DDD	ND		ND		ND	ND	ND	ND
4,4'-DDE	ND		ND		ND	ND	ND	ND
4,4'-DDT	ND		ND		ND	ND	ND	ND
DIBENZO(a,h)ANTHRACENE	ND		ND		ND	ND	ND	ND
DI-N-BUTYLPHTHALATE	1.000		<100.0		ND	ND	ND	<1.00
1,2-DICHLOROBENZENE	ND		ND		ND	ND	ND	ND
1,3-DICHLOROBENZENE	ND		ND		ND	ND	ND	ND
1,4-DICHLOROBENZENE	ND		ND		ND	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND		ND		ND	ND	ND	ND
DIELDRIN	ND		ND		ND	ND	ND	ND
DIETHYL PHTHALATE	<1.00		<100.0		ND	ND	ND	ND
DIMETHYL PHTHALATE	ND		ND		ND	ND	ND	ND
2,4-DINITROTOLUENE	ND		ND		ND	ND	ND	ND
2,6-DINITROTOLUENE	ND		ND		ND	ND	ND	ND
DI-N-OCTYLPHTHALATE	ND		ND		ND	ND	ND	ND
ALPHA-ENDOSULFAN	ND		ND		ND	ND	ND	ND
BETA- ENDOSULFAN	ND		ND		ND	ND	ND	ND
ENDOSULFAN SULFATE	ND		<3.00		ND	ND	ND	ND
ENDRIN								

Geraghty & Miller, Inc.

SOIL, SLUDGE AND SEMI SOLID WASTE

SAMPLING POINT	PIT B	PIT B	PIT B	PIT B	PIT D	PIT A	PIT A	KNN SEEP
SAMPLE TYPE	SOIL	SOIL	WASTE	WASTE	SOIL	SOIL	SOIL	SOIL
LABORATORY	IT	IT	IT	IT	IT	IT	IT	IT
SAMPLED BY	TDHE	TDHE	TDHE	TDHE	TDHE	TDHE	TDHE	TDHE
DATE SAMPLED	22-Jan-86	22-Jan-86	22-Jan-86	22-Jan-86	22-Jan-86	22-Jan-86	22-Jan-86	28-Jan-86
METALS (PPM)								
ANTIMONY		<0.10		0.100			<0.10	<0.050
ARSENIC	<0.001	9.000	<0.001	<0.10		0.002	9.000	18.000
BARIUM	0.120		0.080			0.140		
BERYLLIUM		1.100		<0.10			1.200	0.690
CADMIUM	<0.001	<0.10	0.006	0.250		0.003	<0.10	<0.030
CHROMIUM	<0.010	14.000	<0.010	14.000		<0.010	14.000	9.300
COPPER		4.400		0.800			7.500	6.500
LEAD	0.120	8.200	<0.010	1.200		<0.010	8.000	7.600
MERCURY	0.001	0.120	0.001	<0.10		0.002	<0.10	0.048
NICKEL		7.300		<0.70			11.000	8.300
SELENIUM	<0.001	<1.00	<0.001	<0.80		<0.001	<1.00	<0.30
SILVER	<0.002	<0.20	<0.002	<0.10		<0.002	<0.20	<0.10
THALLIUM		<2.00		<1.00			<2.00	<0.60
ZINC		37.000		560.000			33.000	30.000
CYANIDE		0.250		0.070			0.250	0.200

Geraghty & Miller, Inc.

SOIL, SLUDGE AND SEMI SOLID WASTE

SAMPLING POINT	PIT B	PIT B	PIT B	PIT D	PIT A	PIT A	KNN SEEP
SAMPLE TYPE	SOIL	WASTE	WASTE	SOIL	SOIL	SOIL	SOIL
LABORATORY	IT	IT	IT	IT	IT	IT	IT
SAMPLED BY	TDHE	TDHE	TDHE	TDHE	TDHE	TDHE	TDHE
DATE SAMPLED	22-Jan-86	22-Jan-86	22-Jan-86	22-Jan-86	22-Jan-86	22-Jan-86	28-Jan-86
VOLATILE ORGANICS, PARTS PER MILLION (PPM)							
1,1,1-TRICHLOROETHANE		<20000.0		0.430	ND		ND
1,1,2,2-TETRACHLOROETHANE		ND		ND	ND		ND
1,1,2-TRICHLOROETHANE		ND		ND	ND		ND
1,1-DICHLOROETHANE		ND		0.360	0.024		ND
1,1-DICHLOROETHYLENE		ND		0.026	ND		<0.010
1,2-DICHLOROETHYLENE							
1,2-DICHLOROETHANE		ND		ND	ND		ND
1,2-DICHLOROPROPANE		ND		ND	ND		ND
2-CHLOROETHYLVINYLETHER		ND		ND	ND		ND
ACETONE		ND		ND	ND		ND
ACROLEIN		ND		ND	ND		ND
ACRYLONITRILE		ND		ND	ND		ND
BENZENE		ND		<0.010	ND		ND
BROMODICHLOROMETHANE		ND		ND	ND		ND
BROMOFORM		ND		ND	ND		ND
BROMOMETHANE		ND		ND	ND		ND
CARBON TETRACHLORIDE		ND		ND	ND		ND
CHLOROBENZENE		ND		ND	ND		ND
CHLOROETHANE		ND		0.085	<0.010		ND
CHLOROFORM		ND		ND	ND		ND
CHLOROMETHANE		ND		ND	ND		ND
DICHLORODIFLUROMETHANE							
DIBROMOCHLOROMETHANE		ND		ND	ND		ND
ETHYL ACETATE							
ETHYL BENZENE		ND		ND	ND		ND
HEXANE							
METHYLENE CHLORIDE		<20000.0		ND	0.090		0.027
METHYL ETHYL KETONE							
METHYL BROMIDE							
METHYL CHLORIDE							
TETRACHLOROETHYLENE		<20000.0		<0.010	<0.010		ND
TOLUENE		570000.000		<0.010	0.260		ND
TRANS-1,2-DICHLOROETHYLENE		ND		0.730	ND		<0.010
TRANS-1,2-DICHLOROMETHYLENE							
TRANS-1,3-DICHLOROPROPENE		ND		ND	ND		ND
TRICHLOROETHYLENE		<20000.0		0.100	0.010		ND
VINYL CHLORIDE		ND		ND	ND		ND
cis-1,3-DICHLOROPROPENE		ND		ND	ND		ND
XYLENE							

Geraghty & Miller, Inc.

SOIL, SLUDGE AND SEMI SOLID WASTE

SAMPLING POINT	PIT A3	B-3A	B-3B	B-3B	B-6	BC-4	C-3	C-5	PIT B
SAMPLE TYPE	SOIL	WASTE	SOIL	SLUDGE	WASTE	SLUDGE	WASTE	SLUDGE	SOIL
LABORATORY	SP ASSAYS	SP ASSAYS	SP ASSAYS	SP ASSAYS	SP ASSAYS	SP ASSAYS	SP ASSAYS	SP ASSAYS	IT
SAMPLED BY	GA	GA	GA	GA	GA	GA	GA	GA	TDHE
DATE SAMPLED	22-Jan-86	22-Jan-86	22-Jan-86	22-Jan-86	22-Jan-86	23-Jan-86	23-Jan-86	23-Jan-86	22-Jan-86
VOLATILE ORGANICS, PARTS PER MILLION (PPM)									
1,1,1-TRICHLOROETHANE	<1.0	842.000	<1.0	36.000	6950.000	<1.0	4866.000	<1.0	160.000
1,1,2,2-TETRACHLOROETHANE	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	ND
1,1,2-TRICHLOROETHANE	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	ND
1,1-DICHLOROETHANE	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.950
1,1-DICHLOROETHYLENE	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	3.300
1,2-DICHLOROETHYLENE	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
1,2-DICHLOROETHANE	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	11.000
1,2-DICHLOROPROPANE	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	ND
2-CHLOROETHYLVINYLETHER	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	ND
ACETONE	<1.0	368.000	588.000	<1.0	956.000	6.500	<1.0	<1.0	ND
ACROLEIN	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	ND
ACRYLONITRILE	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	ND
BENZENE	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	6522.000	1.000
BROMODICHLOROMETHANE									ND
BROMOFORM	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	ND
BROMOMETHANE									ND
CARBON TETRACHLORIDE	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	ND
CHLOROBENZENE	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.530
CHLOROETHANE	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	ND
CHLOROFORM	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.250
CHLOROMETHANE									ND
DICHLORODIFLUROMETHANE	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
DIBROMOCHLOROMETHANE	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	ND
ETHYL ACETATE	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
ETHYL BENZENE	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	19.000
HEXANE	<1.0	120.000	<1.0	<1.0	<1.0	<1.0	<1.0	211772.000	
METHYLENE CHLORIDE	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	3.300
METHYL ETHYL KETONE	6.000	<1.0	187.000	169.000	<1.0	12.000	<1.0	1626.000	
METHYL BROMIDE	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
METHYL CHLORIDE	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
TETRACHLOROETHYLENE	<1.0	848.000	340.000	54.000	3208.000	<1000	<1.0	<1.0	220.000
TOLUENE	10.000	4454.000	2710.000	602.000	12020.000	100.000	7070.000	460.000	6200.000
TRANS-1,2-DICHLOROETHYLENE									1.200
TRANS-1,2-DICHLOROMETHYLENE									
TRANS-1,3-DICHLOROPROPENE									ND
TRICHLOROETHYLENE	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	6.900
VINYL CHLORIDE	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	ND
cis-1,3-DICHLOROPROPENE									ND
XYLENE									

Geraghty & Miller, Inc.

WATER AND LIQUID WASTE

SAMPLING POINT	PIT A	KNN SEEP
SAMPLE TYPE	WATER	WATER
LABORATORY	IT	IT
SAMPLED BY	TDHE	TDHE
DATE SAMPLED	22-Jan-86	29-Jan-86

ACID EXTRACTABLE ORGANICS (PPM)

4-CHLORO-3-METHYLPHENOL		
2-CHLOROPHENOL	ND	ND
2,4-DICHLOROPHENOL	ND	ND
2,4-DIMETHYLPHENOL	ND	ND
2-METHYL-4,6-DINITROPHENOL		
4,6-DINITRO-O-CRESOL	ND	ND
2,4-DINITROPHENOL	ND	ND
2-NITROPHENOL	ND	ND
4-NITROPHENOL	ND	ND
P-CHLORO-M-CRESOL	ND	ND
PENTACHLOROPHENOL	ND	ND
PHENOL	ND	ND
2,4,6-TRICHLOROPHENOL	ND	ND

Geraghty & Miller, Inc.

WATER AND LIQUID WASTE

SAMPLING POINT	PIT A	KMW SEEP
SAMPLE TYPE	WATER	WATER
LABORATORY	IT	IT
SAMPLED BY	TDHE	TDHE
DATE SAMPLED	22-Jan-86	28-Jan-86

BASE/NEUTRAL EXTRACTABLES (CONT.)

BETA-ENDOSULFAN		ND
ENDOSULFAN SULFATE		ND
ENDRIN ALDEHYDE		ND
FLUORANTHENE	ND	ND
FLUORENE	ND	ND
HEPTACHLOR		ND
HEPTACHLOR EPOXIDE	ND	ND
HEXACHLOROBENZENE	ND	ND
HEXACHLOROBUTADIENE	ND	ND
HEXACHLOROCYCLOPENTADIENE	ND	ND
HEXACHLOROETHANE	ND	ND
INDENO(1,2,3-cd)PYRENE	ND	ND
ISOPHORONE	ND	ND
NAPTHALENE	<0.01	ND
NITROBENZENE	ND	ND
N-NITROSODIMETHYLAMINE	ND	ND
N-NITROSODIPHENYLAMINE	ND	ND
N-NITROSODI-N-PROPYLAMINE	ND	ND
PCB-1016		ND
PCB-1221		ND
PCB-1232		ND
PCB-1242		ND
PCB-1248		ND
PCB-1254		ND
PCB-1260		ND
PHENANTHRENE	ND	ND
PYRENE	ND	ND
TOXAPHENE		ND
1,2,4,-TRICHLOROBENZENE	ND	ND
METHOXYCHLOR		ND

Geraghty & Miller, Inc.

WATER AND LIQUID WASTE

SAMPLING POINT	TP-30	PIT A	KNN SEEP
SAMPLE TYPE	WATER	WATER	WATER
LABORATORY	SP ASSAYS	IT	IT
SAMPLED BY	SA	TDHE	TDHE
DATE SAMPLED	22-Jan-86	22-Jan-86	28-Jan-86
VOLATILE ORGANICS, PARTS PER MILLION (PPM)			MILLION (PPM)
1,1,1-TRICHLOROETHANE	1.124	2.000	ND
1,1,2,2-TETRACHLOROETHANE	<0.010	ND	ND
1,1,2-TRICHLOROETHANE	<0.010	ND	ND
1,1-DICHLOROETHANE	0.585	4.300	ND
1,1-DICHLOROETHYLENE	0.033	0.290	ND
1,2-DICHLOROETHYLENE	1.950	ND	ND
1,2-DICHLOROETHANE	<0.010	1.200	<0.01
1,2-DICHLOROPROPANE		ND	ND
2-CHLOROETHYLVINYLETHER	<0.010	ND	ND
ACETONE	<0.1		
ACROLEIN	<0.1	ND	ND
ACRYLONITRILE	<0.1	ND	ND
BENZENE	<0.010	0.200	ND
BROMODICHLOROMETHANE	<0.010	ND	ND
BROMOFORM	<0.010	ND	ND
BROMOMETHANE		ND	ND
CARBON TETRACHLORIDE	<0.010	ND	ND
CHLOROBENZENE	<0.010	0.014	ND
CHLOROETHANE	<0.010	0.750	0.011
CHLOROFORM	<0.010	ND	ND
CHLOROMETHANE		ND	ND
DIBROMOCHLOROMETHANE	<0.010	ND	ND
DICHLORODIFLUROMETHANE	<0.010		
ETHYL ACETATE	<0.1		
ETHYL BENZENE	<0.010	0.300	ND
HEXANE	<0.1		
METHYLENE CHLORIDE	<0.010	0.340	ND
METHYL ETHYL KETONE	<0.1		
METHYL BROMIDE	<0.010		
METHYL CHLORIDE	<0.010		
TETRACHLOROETHYLENE	<0.010	0.110	ND
TOLUENE	0.124	120.000	ND
TRANS-1,2-DICHLOROETHYLENE		3.000	0.011
TRANS-1,2-DICHLOROMETHYLENE			
TRANS-1,3-DICHLOROPROPENE		ND	ND
TRICHLOROETHYLENE	0.080	0.075	ND
VINYL CHLORIDE	<0.010	<0.010	ND
cis-1,3-DICHLOROPROPENE		ND	ND
TRANS 1,3-DICHLOROPROPENE		ND	ND
XYLENE			

Geraghty & Miller, Inc.

WATER AND LIQUID WASTE

SAMPLING POINT	PIT A	KNW SEEP
SAMPLE TYPE	WATER	WATER
LABORATORY	IT	IT
SAMPLED BY	TDHE	TDHE
DATE SAMPLED	22-Jan-86	28-Jan-86

METALS (PPM)

ANTIMONY	0.001	<2
ARSENIC	0.012	217.000 ~~217.000~~ .217
BERYLLIUM	<0.002	0.010
CADMIUM	<0.001	<0.001
CHROMIUM	<0.01	0.150
COPPER	0.011	0.088
LEAD	<0.01	0.120
MERCURY	<0.001	<0.001
NICKEL	<0.01	<0.01
SELENIUM	<0.004	<0.03
SILVER	<0.002	<0.002
THALLIUM	<0.02	<0.02
ZINC	0.012	0.519
CYANIDE	0.001	0.010

Geraghty & Miller, Inc.

WATER AND LIQUID WASTE

SAMPLING POINT	PIT A	KNM SEEP
SAMPLE TYPE	WATER	WATER
LABORATORY	IT	IT
SAMPLED BY	TDHE	TDHE
DATE SAMPLED	22-Jan-96	28-Jan-86
BASE/NEUTRAL EXTRACTABLES (PPM)		
ACENAPHTHENE	ND	ND
ACENAPHTHYLENE	ND	ND
ANTHRACENE	ND	ND
ALDRIN		ND
BENZIDINE		
BENZO(a)ANTHRACENE	ND	ND
BENZO(b)FLUORATHENE		ND
BENZO(k)FLUORATHENE	ND	ND
BENZO(a)PYRENE		ND
BENZO(ghi)PERYLENE	ND	ND
BENZYL BUTLY PHTHALATE	ND	ND
ALPHA-BHC		ND
BETA-BHC		ND
GAMMA-BHC		ND
DELTA-BHC		ND
BIS(2-CHLOROETHYL)ETHER	ND	ND
BIS(2-CHLOROETHOXY)METHANE	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND
BIS(2-CHLOROISOPROPYL)ETHER	ND	ND
BIS(CHLOROMETHYL) ETHER		
4-BROMOPHENYL PHENYL ETHER	ND	ND
BUTYL BENZYLPHTHALATE		ND
CHLORODANE		ND
2-CHLORONAPTHALENE	ND	ND
4-CHLOROPHENYL PHENYL ETHER	ND	ND
CHRYSENE	ND	ND
4,4'-DDD		ND
4,4'-DDE		ND
4,4'-DDT		ND
DIBENZO(a,h)ANTHRACENE	ND	ND
DI-N-BUTYLPHTHALATE	ND	ND
1,2-DICHLOROBENZENE	0.010	ND
1,3-DICHLOROBENZENE	ND	ND
1,4-DICHLOROBENZENE	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND
DIELDRIN		ND
DIETHYL PHTHALATE	<0.01	ND
DIMETHYL PHTHALATE	ND	ND
2,4-DINITROTOLUENE	ND	ND
2,6-DINITROTOLUENE	ND	ND
DI-N-OCTYLPHTHALATE	ND	ND
ALPHA-ENDOSULFAN		

Geraghty & Miller, Inc.

WATER AND LIQUID WASTE JANUARY 1986

SAMPLING POINT	E-3	E-4	E-5	E-11	E-12	E-14	P-3	TP-28	TP-29
SAMPLE TYPE	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
LABORATORY	SP ASSAYS	SP ASSAYS	SP ASSAYS	SP ASSAYS	SP ASSAYS	SP ASSAYS	SP ASSAYS	SP ASSAYS	SP ASSAYS
SAMPLED BY	GA	GA	GA	GA	GA	GA	GA	GA	GA
DATE SAMPLED	24-Jan-86	24-Jan-86	24-Jan-86	24-Jan-86	24-Jan-86	24-Jan-86	24-Jan-86	22-Jan-86	22-Jan-86
VOLATILE ORGANICS, PARTS PER MILLION (PPM)									
1,1,1-TRICHLOROETHANE	0.180	0.039	0.010	0.013	3.100	0.044	<0.010	<0.010	0.071
1,1,2,2-TETRACHLOROETHANE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,1,2-TRICHLOROETHANE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,1-DICHLOROETHANE	0.240	0.275	<0.010	0.097	1.117	<0.010	<0.010	0.052	0.311
1,1-DICHLOROETHYLENE	0.050	<0.010	<0.010	<0.010	0.149	<0.010	<0.010	<0.010	<0.010
1,2-DICHLOROETHYLENE	0.470	0.076	<0.010	0.028	0.541	<0.010	<0.010	<0.010	0.346
1,2-DICHLOROETHANE	<0.010	<0.010	<0.010	<0.010	0.073	<0.010	<0.010	<0.010	<0.010
1,2-DICHLOROPROPANE									
2-CHLOROETHYLVINYLETHER	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
ACETONE	0.010	0.110	<0.1	<0.1	10.000	<0.1	<0.1	<0.1	14.700
ACROLEIN	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
ACRYLONITRILE	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BENZENE	<0.010	0.013	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
BROMODICHLOROMETHANE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
BROMOFORM	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
BROMOMETHANE									
CARBON TETRACHLORIDE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
CHLOROBENZENE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
CHLOROETHANE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
CHLOROFORM	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
CHLOROMETHANE									
DIBROMOCHLOROMETHANE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
DICHLORODIFLUROMETHANE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
ETHYL ACETATE	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	20.000
ETHYL BENZENE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
HEXANE	<0.1	<0.1	<0.1	<0.1	3.250	<0.1	<0.1	<0.1	<0.1
METHYLENE CHLORIDE	0.170	<0.010	<0.010	0.117	0.370	<0.010	0.029	<0.010	5.620
METHYL ETHYL KETONE	1.350	0.126	<0.1	<0.1	18.700	<0.1	<0.1	<0.1	7.740
METHYL BROMIDE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
METHYL CHLORIDE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
TETRACHLOROETHYLENE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
TOLUENE	12.890	0.145	<0.010	<0.010	21.600	0.019	<0.010	<0.010	2.611
TRANS-1,2-DICHLOROETHYLENE									
TRANS-1,2-DICHLOROMETHYLENE									
TRANS-1,3-DICHLOROPROPENE									
TRICHLOROETHYLENE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
VINYL CHLORIDE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
cis-1,3-DICHLOROPROPENE									
TRANS 1,3-DICHLOROPROPENE									
XYLENE					0.308				

Geraghty & Miller, Inc.

WATER AND LIQUID WASTE — JANUARY 1986

SAMPLING POINT	D-2	D-5	D-7	D-8	D-10	D-16	D-17	D-19	E-2
SAMPLE TYPE	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
LABORATORY	SP ASSAYS	SP ASSAYS	SP ASSAYS	SP ASSAYS	SP ASSAYS	SP ASSAYS	SP ASSAYS	SP ASSAYS	SP ASSAYS
SAMPLED BY	GA	GA	GA	GA	GA	GA	GA	GA	GA
DATE SAMPLED	23-Jan-86	23-Jan-86	23-Jan-86	23-Jan-86	23-Jan-86	23-Jan-86	23-Jan-86	23-Jan-86	24-Jan-86

VOLATILE ORGANICS, PARTS PER MILLION (PPM)

1,1,1-TRICHLOROETHANE	1.184	0.150	23.400	0.019	0.019	0.317	0.229	<0.010	16.000
1,1,2,2-TETRACHLOROETHANE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,1,2-TRICHLOROETHANE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,1-DICHLOROETHANE	1.330	0.230	5.450	<0.010	0.132	0.336	0.129	0.350	15.550
1,1-DICHLOROETHYLENE	0.024	<0.010	<0.010	<0.010	<0.010	<0.010	0.047	0.044	0.400
1,2-DICHLOROETHYLENE	6.670	0.840	<0.010	<0.010	0.068	0.471	1.745	0.144	13.500
1,2-DICHLOROETHANE	0.018	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	1.700
1,2-DICHLOROPROPANE									
2-CHLOROETHYLVINYLETHER	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
ACETONE	0.370	<0.1	10.000	<0.1	<0.1	<0.1	<0.1	<0.1	51.700
ACROLEIN	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
ACRYLONITRILE	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BENZENE	0.097	<0.010	<0.010	<0.010	<0.010	<0.010	0.017	<0.010	1.480
BROMODICHLOROMETHANE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
BROMOFORM	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
BROMOMETHANE									
CARBON TETRACHLORIDE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
CHLOROBENZENE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
CHLOROETHANE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
CHLOROFORM	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
CHLOROMETHANE									
DIBROMOCHLOROMETHANE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
DICHLORODIFLUROMETHANE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
ETHYL ACETATE	0.102	<0.1	5.200	<0.1	<0.1	<0.1	<0.1	<0.1	3.800
ETHYL BENZENE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
HEXANE	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.450
METHYLENE CHLORIDE	0.882	0.028	3.400	<0.010	<0.010	0.020	0.044	0.056	24.500
METHYL ETHYL KETONE	4.100	<0.1	2776.000	<0.1	<0.1	<0.1	0.170	<0.1	45.400
METHYL BROMIDE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
METHYL CHLORIDE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
TETRACHLOROETHYLENE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.019	0.012	0.650
TOLUENE	1.950	0.052	49.400	<0.010	1.000	0.010	0.670	<0.010	147.200
TRANS-1,2-DICHLOROETHYLENE									
TRANS-1,2-DICHLOROMETHYLENE									
TRANS-1,3-DICHLOROPROPENE									
TRICHLOROETHYLENE	0.189	0.375	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	1.500
VINYL CHLORIDE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
cis-1,3-DICHLOROPROPENE									
TRANS 1,3-DICHLOROPROPENE									
XYLENE			1.550						

Geraghty & Miller, Inc.

WATER AND LIQUID WASTE

JANUARY 1986

SAMPLING POINT	BC-10	BC-12	BC-13	C-1	C-2	C-4	C-6	C-7	D-1
SAMPLE TYPE	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
LABORATORY	SP ASSAYS	SP ASSAYS	SP ASSAYS	SP ASSAYS	SP ASSAYS	SP ASSAYS	SP ASSAYS	SP ASSAYS	SP ASSAYS
SAMPLED BY	GA	GA	GA	GA	GA	GA	GA	GA	GA
DATE SAMPLED	23-Jan-86	23-Jan-86	23-Jan-86	23-Jan-86	23-Jan-86	23-Jan-86	23-Jan-86	23-Jan-86	23-Jan-86
VOLATILE ORGANICS, PARTS PER MILLION (PPM)									
1,1,1-TRICHLOROETHANE	0.550	1.400	8.200	72.300	101.100	85.900	59.300	130.000	0.422
1,1,2,2-TETRACHLOROETHANE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,1,2-TRICHLOROETHANE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,1-DICHLOROETHANE	0.180	0.520	0.700	38.400	10.200	8.500	4.900	4.200	0.168
1,1-DICHLOROETHYLENE	0.013	<0.010	0.100	0.150	1.300	2.000	1.300	1.100	<0.010
1,2-DICHLOROETHYLENE	0.930	3.100	1.300	0.500	20.900	<0.010	4.800	2.300	0.450
1,2-DICHLOROETHANE	<0.010	<0.010	0.163	<0.010	2.195	<0.010	24.800	22.100	<0.010
1,2-DICHLOROPROPANE									
2-CHLOROETHYLVINYLETHER	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
ACETONE	<0.1	4.800	1.990	2.000	13.400	48.400	85.400	730.000	<0.1
ACROLEIN	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
ACRYLONITRILE	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BENZENE	<0.010	<0.010	0.095	<0.010	0.900	<0.010	2.300	3.400	<0.010
BROMODICHLOROMETHANE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
BROMOFORM	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
BROMOMETHANE									
CARBON TETRACHLORIDE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
CHLOROBENZENE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
CHLOROETHANE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
CHLOROFORM	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
CHLOROMETHANE									
DIBROMOCHLOROMETHANE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
DICHLORODIFLUROMETHANE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
ETHYL ACETATE	<0.1	5.900	1.300	22.100	4.500	17.700	21.300	52.000	<0.1
ETHYL BENZENE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
HEXANE	2.710	<0.1	1.800	17.200	12.900	18.000	2.300	4.100	<0.1
METHYLENE CHLORIDE	<0.010	1.000	0.110	5.200	9.500	2.400	63.500	43.800	0.032
METHYL ETHYL KETONE	<0.1	1.000	3.400	21.600	55.200	78.700	281.700	2056.000	<0.1
METHYL BROMIDE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
METHYL CHLORIDE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
TETRACHLOROETHYLENE	0.440	<0.010	1.600	11.500	12.300	5.700	5.200	4.600	<0.010
TOLUENE	4.200	13.900	24.200	268.600	462.800	97.000	360.000	534.000	0.079
TRANS-1,2-DICHLOROETHYLENE									
TRANS-1,2-DICHLOROMETHYLENE									
TRANS-1,3-DICHLOROPROPENE									
TRICHLOROETHYLENE	0.060	<0.010	0.230	44.200	7.400	2.200	4.200	<0.010	0.302
VINYL CHLORIDE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
cis-1,3-DICHLOROPROPENE									
TRANS 1,3-DICHLOROPROPENE									
XYLENE	0.810		2.400	6.000	9.000	5.200	3.620	3.220	

Geraghty & Miller, Inc.

WATER AND LIQUID WASTE JANUARY 1986

SAMPLING POINT	PIT A3	AB-1	B-3	B-3A	B-3B *	B-4	BC-4	BC-10	BC-10
SAMPLE TYPE	WATER	WATER	LIQ WASTE	LIQ WASTE	LIQ WASTE	WATER	WATER	WATER	WATER
LABORATORY	SP ASSAYS	SP ASSAYS	SP ASSAYS	SP ASSAYS	SP ASSAYS	SP ASSAYS	SP ASSAYS	SP ASSAYS	SP ASSAYS
SAMPLED BY	GA	GA	GA	GA	GA	GA	GA	GA	GA
DATE SAMPLED	22-Jan-86	22-Jan-86	22-Jan-86	22-Jan-86	22-Jan-86	22-Jan-86	23-Jan-86	23-Jan-86	23-Jan-86
VOLATILE ORGANICS, PARTS PER MILLION (PPM)									
1,1,1-TRICHLOROETHANE	5.100	26.400	<0.010	318.400	59.300	14.500	129.000	1.650	0.550
1,1,2,2-TETRACHLOROETHANE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,1,2-TRICHLOROETHANE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,1-DICHLOROETHANE	7.100	5.300	<0.010	<0.010	4.800	3.000	280.000	1.400	0.190
1,1-DICHLOROETHYLENE	0.300	0.422	<0.010	<0.010	0.550	0.400	1.000	0.045	0.013
1,2-DICHLOROETHYLENE	6.400	9.300	<0.010	<0.010	10.100	31.600	1.800	1.200	0.990
1,2-DICHLOROETHANE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	59.100	0.349	<0.010
1,2-DICHLOROPROPANE									
2-CHLOROETHYLVINYLETHER	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
ACETONE	29.400	85.500	<0.1	4980.000	317.900	91.200	49.600	345.000	<0.1
ACROLEIN	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
ACRYLONITRILE	<0.1	<0.1*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BENZENE	0.800	0.605	<0.010	<0.010	1.100	<0.010	0.240	0.051	<0.010
BROMODICHLOROMETHANE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
BROMOFORM	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
BROMOMETHANE									
CARBON TETRACHLORIDE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
CHLOROBENZENE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
CHLOROETHANE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
CHLOROFORM	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
CHLOROMETHANE									
DIBROMOCHLOROMETHANE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
DICHLORODIFLUROMETHANE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
ETHYL ACETATE	7.000	23.500	<0.1	<0.1	<0.1	5.900	9.600	25.300	<0.1
ETHYL BENZENE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
HEXANE	0.800	2.010	<0.1	<0.1	<0.1	<0.1	2.200	4.500	2.710
METHYLENE CHLORIDE	1.200	9.600	<0.010	894.000	13.900	12.600	35.800	0.547	<0.010
METHYL ETHYL KETONE	24.900	73.900	<0.1	9285.000	<0.1	79.900	135.000	340.000	<0.1
METHYL BROMIDE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
METHYL CHLORIDE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
TETRACHLOROETHYLENE	<0.010	3.900	<0.010	14911.000	4.000	0.012	3.300	0.946	0.440
TOLUENE	108.200	491.400	183.000	29434.000	657.100	221.200	277.600	319.000	4.200
TRANS-1,2-DICHLOROETHYLENE									
TRANS-1,2-DICHLOROMETHYLENE									
TRANS-1,3-DICHLOROPROPENE									
TRICHLOROETHYLENE	<0.010	1.100	<0.010	<0.010	1.700	1.000	2.500	0.104	0.060
VINYL CHLORIDE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
cis-1,3-DICHLOROPROPENE									
TRANS 1,3-DICHLOROPROPENE									
XYLENE	3.200	3.380		2.776	3.600	4.000	4.800	2.040	0.810

LIQ = LIQUID

SP ASSAY = SPECIALIZED ASSAYS, INC., NASHVILLE, TN
IT = IT ANALYTICAL SERVICES, KNOXVILLE, TN

<X DENOTES NOT DETECTED IN THE SPECIALIZED ASSAYS ANALYSES, WHERE X IS THE LEVEL OF DETECTION

ND DENOTES NOT DETECTED IN THE IT ANALYSES. <X DENOTES THAT THE CONSTITUENT WAS DETECTED BUT AT A LEVEL LESS THAN THE LEVEL OF QUANTIFICATION, WHERE X IS THE LEVEL OF QUANTIFICATION

SUMMARY OF WASTE, SOIL AND WATER ANALYTICAL RESULTS FOR SAMPLES
OBTAINED DIRECTLY FROM INSPECTION PITS WITHIN DISPOSAL AREA
KENNON PROPERTY
February 22, 23 and 24, 1986
Brentwood, Williamson County, Tennessee

FIELD NO.	DATE COLLECTED	TIME COLLECTED	PIT LOCATION	LAB I.D. NO.	TYPE OF SAMPLE	TOTAL CONC. OF VOL. CONSTITUENTS ppm	NO. OF VOLATILE CONSTITUENTS DETECTED	ARSENIC ppm	CHROMIUM ppm	LEAD ppm
1	1/22/86	1015	A-3	281651	Soil	16.0	2	5.3	27.0	16.9
2	1/22/86	1015	A-3	281643	Water	194.4	12	(0.001	(0.005	(0.001
3	1/22/86	1025	B-3	281644	Liquid Waste	183	1	(0.001	0.03	0.01
4	1/22/86	1042	B-3A	281645	Liquid Waste	65,464	7	(0.001	11.2	0.50
5	1/22/86	1040	B-3A	281652	Semi-Solid Waste	6,632	5	6.2	30.5	20.6
6	1/22/86	1043	B-3B	281995	Soil	3,825	4	4.0	22.8	11.7
7	1/22/86	1053	B-3B	281996	Soil/Sludge	861	4	7.8	22.5	12.2
8	1/22/86	1054	B-3B	281646	Liquid Waste	1,074.55	11	0.003	(0.005	(0.001
9	1/22/86	1325	B-4	281647	Water	471.412	13	0.002	(0.005	0.002
10	1/22/86	1347	B-6	281997	Semi-Solid Material	23,134	4	0.90	17.2	11.9
11	1/22/86	1455	AB-1	281648	Water	737.847	14	(0.001	(0.005	(0.001
12	1/22/86	1504	TP-29	281649	Water	52.199	8	(0.001	(0.005	(0.001
13	1/22/86	1512	TP-30	281650	Water	4.006	6	(0.001	(0.005	(0.001
14	1/22/86	1514	TP-28	281951	Water	0.052	1	(0.001	(0.005	(0.001
16	1/23/86	0835	BC-4	281952	Water	993.7	15	0.003	0.005	0.002
17	1/23/86	0837	BC-4	281998	Soil/Sludge	129.5	4	8.2	26.5	16.7
18	1/23/86	0850	C-1	281953	Water	511.2	13	(0.001	(0.005	(0.001
19	1/23/86	0905	C-2	281954	Water	728.595	15	(0.001	(0.005	(0.001
20	1/23/86	0925	C-3	281999	Semi-Solid Waste	11,936	2	0.05	(0.02	1.0
21	1/23/86	0935	C-4	281955	Water	371.7	12	(0.001	(0.005	(0.001
22	1/23/86	0947	C-5	282000	Sludge	220,380	4	0.03	0.15	0.07
23	1/23/86	1005	C-6	281956	Water	925.32	15	0.002	(0.005	0.002
24	1/23/86	1030	C-7	281957	Water	3,591.32	14	0.002	(0.005	(0.001
25	1/23/86	1145	BC-10	281958	Water	1,042.132	15	0.004	(0.005	0.004
26	1/23/86	1425	BC-13	281959	Water	48.088	15	(0.001	(0.005	(0.001
27	1/23/86	1428	BC-12	281960	Water	31.62	8	(0.001	(0.005	(0.001
28	1/23/86	1432	BC-10	281961	Water	9.943	9	(0.001	(0.005	(0.001
29	1/23/86	1436	D-16	281962	Water	1.154	5	(0.001	(0.005	(0.001
30	1/23/86	1439	D-13	281963	Water	1.269	4	(0.001	(0.005	(0.001
31	1/23/86	1447	D-17	281964	Water	3.07	9	(0.001	(0.005	(0.001
32	1/23/86	1449	D-18	281965	Water	0.701	6	(0.001	(0.005	(0.001
33	1/23/86	1451	D-7	281966	Water	2,875.4	8	(0.001	(0.005	(0.001
34	1/23/86	1454	D-1	281967	Water	1.453	6	(0.001	(0.005	(0.001
35	1/23/86	1455	D-1	281968	Water	1.675	6	(0.001	(0.005	(0.001
36	1/23/86	1456	D-2	281969	Water	17.924	12	(0.001	(0.005	(0.001
37	1/23/86	1500	D-8	281970	Water	0.019	1	(0.001	(0.005	(0.001
38	1/24/86	1005	E-11	281971	Water	0.545	4	(0.001	(0.005	(0.001
39	1/24/86	1007	E-5	281972	Water	0.010	1	(0.001	(0.005	(0.001
40	1/24/86	1009	E-4	281973	Water	1.084	7	(0.001	(0.005	(0.001
41	1/24/86	1011	E-3	281974	Water	17.82	8	(0.001	(0.005	(0.001
42	1/24/86	1015	E-12	281975	Water	60.108	11	(0.001	(0.005	(0.001
[illegible]	1/24/86	1018	E-2	281976	Water	323.93	14	(0.001	(0.005	(0.001
	1/24/86	1021	P-3	281977	Water	0.029	1	(0.001	(0.005	0.002
45	1/24/86	1024	E-14	281978	Water	0.063	2	(0.001	(0.005	(0.001

NOTE: (1) (designates 'less than'.
(2) There was no Field No. 15 collected.

ENGINEERING, DESIGN & GEOSCIENCES GROUP, INC.

4/2/86ls

REF. 2

The
Condensed Chemical Dictionary

TENTH EDITION (1981)

Revised by

GESSNER G. HAWLEY

VNR VAN NOSTRAND REINHOLD COMPANY
NEW YORK CINCINNATI TORONTO LONDON MELBOURNE

cars.
to skin and eyes; causes blis-
ard.

Exists only at low tempera-
F.p. −114°C; b.p. −20°C;
ation at normal pressure to
hexachlorobenzene.
: carbon tetrachloride vapor
and 10^{-3} mm Hg.
ion with carbon; forms phos-
oxygen.

ocene (ferrocenoyl dichlo-

ine solid; m.p. 93–95°C.

henyl)-1,3,5,-triazin-2-
Cl_2.
ne solid; m.p. 159–160°C;

. See aniline.

ine. See chlorovinyldi-

diphenylmethane. See
roaniline).

benzoquinone (DDQ)
N):C(CN).

w-orange solid; m.p. 213-

oxidizing agent for organic

. See dichloroethyl ether.

See dichloroethyl formal.

mustard gas; dichloroethyl

: b.p. 228°C; f.p. 14°C; sp.
°F (104°C).
hylene through sulfur chlo-
col and hydrogen chloride.
containing excess sulfur as a

Vesicant war gas; causes
dness! Can be *decontami-*
r bleaching powder. Vapor
nd can be *absorbed through*

; poison gas; *medicine.*
Rail) Poison gas label. Not
Air) *Not acceptable.*

$(ClCH_2CH_2)_2SO_2$.
sta . 179–181°C(14–15
ol lcohol, chloroform,
ble in water.
rritant to eyes and skin.

2,2-dichloro-1,1-difluoroethyl methyl ether (methoxyflurane) $HCCl_2CF_2OCH_3$.
Properties: Clear, colorless liquid; fruity odor; b.p. 104.65°C; f.p. −35°C; sp. gr. 1.4223 (25°C); completely stable in the presence of alkali, air, light, or moisture. Slightly soluble in water. Combustible.
Grade: N.D.
Use: Anesthetic.

dichlorodifluoromethane (difluorodichloromethane; fluorocarbon-12). CCl_2F_2.
Properties: Colorless, odorless, noncorrosive gas. B.p. −29.8°C; f.p. −158°C; critical pressure 43.2 atm. Insoluble in water; soluble in most organic solvents. Nonflammable.
Derivation: (a) Reaction of carbon tetrachloride and anhydrous hydrogen fluoride, in the presence of an antimony halide catalyst; (b) high temperature chlorination of vinylidene fluoride (vinylidene fluorides made by addition of hydrogen fluoride to acetylene).
Grade: 99.9% min. purity.
Containers: Cylinders.
Hazard: Narcotic in high concentrations. Tolerance, 1000 ppm in air.
Uses: Refrigerant and air conditioner; plastics; blowing agent; low-temperature solvent; leak-detecting agent; freezing of foods by direct contact; chilling cocktail glasses.
Shipping regulations: (Rail, Air) Nonflammable Gas label.
See also chlorofluorocarbon.

1,3-dichloro-5,5-dimethylhydantoin (DDH) $ClNCONClOC(CH_3)_2$.

Properties: White powder with mild chlorine odor. M.p. approximately 130°C; sublimes about 100°C without decomposition. Contains approximately 36% active chlorine. Slightly soluble in water with gradual liberation of hypochlorous acid; soluble in benzene, chloroform, ethylene dichloride, alcohol. Combustible, with evolution of chlorine at 210°C.
Derivation: Chlorination of dimethylhydantoin.
Grades: Technical.
Hazard: Toxic by inhalation. *Tolerance, 0.2 mg per* cubic meter of air. Skin irritant.
Uses: Household *laundry bleach; water treatment;* mild chlorinating agent; pharmaceutical intermediate; catalyst.

dichlorodimethylsilane. See dimethyldichlorosilane.

dichlorodiphenyldichloroethane. See TDE.

dichlorodiphenyldichloroethylene. See DDE.

dichlorodiphenyltrichloroethane. See DDT.

1,1-dichloroethane. See ethylidene chloride.

1,2-dichloroethane. *See ethylene dichloride.*

dichloroether. See dichloroethyl ether.

dichloroethoxymethane. See dichloroethylformal.

1,2-dichloroethyl acetate $CH_3COOCHClCH_2Cl$.
Properties: Water-white liquid. Sp. gr. 1.296 (20°C); boiling range: 58–65°C (13 mm); f.p. < −32°C; refractive index 1.444 (20°C); b.p., dec. Flash point 307°F (152°C). Combustible. Miscible with alcohol and ethyl ether. Immiscible with water.
Hazard: Toxic by inhalation.
Use: Organic synthesis.

para-di(2-chloroethyl)aminophenylalamine.
See melphalan.

dichloroethylarsine. See ethyldichloroarsine.

dichloroethyl carbonate $(ClH_2CCH_2O)_2CO$.
Properties: Colorless liquid. Slowly hydrolyzed by alkalies. Volatile in steam. Sp. gr. 1.3506 (20°C); b.p. 240°C (partial decomposition). Insoluble in water.
Derivation: By heating ethylene chlorohydrin and trichloromethylchloroformate together (under reflux).

sym-dichloroethylene (1,2-dichloroethylene; acetylene dichloride). ClHC:CHCl. Exists as cis and trans isomers. *
Properties: Colorless, low-boiling liquid. Pleasant odor. It decomposes slowly on exposure to air, light and moisture. Soluble in most organic solvents; slightly soluble in water. Trans-isomer: sp. gr. 1.257; b.p. 47–49°C. Cis-isomer: sp. gr. 1.282; b.p. 58–60°C. Flash point 39°F (3.9°C); f.p. −80°C.
Derivation: Two stereoisomeric compounds made by the partial chlorination of acetylene.
Grades: Technical; as cis, trans, and mixture of both.
Containers: 300-, 550-lb drums.
Hazard: Moderately toxic by ingestion, inhalation and skin contact; irritant and narcotic in high concentrations. Tolerance, 200 ppm in air. Flammable, dangerous fire hazard.
Uses: General solvent for organic materials; dye extraction; perfumes; lacquers; thermoplastics; organic synthesis.
Shipping regulations: (Rail, Air) Flammable Liquid label.

sym-dichloroethyl ether *(dichloroether; dichloro*ethyl oxide; 2,2′-dichlorodiethyl ether, bis(2-chloroethyl) ether) $ClCH_2CH_2OCH_2CH_2Cl$.
Properties: Colorless liquid. Odor like that of ethylene dichloride. B.p. 178.5°C; *sp. gr. 1.2220 (20/*20°C); wt/gal 10.2 lb (20°C); refractive index 1.457 *(20°C); flash point (closed cup) 131°F (55°C); f.p.* −51.8°C. Autoignition temp. 696°F (368°C). Miscible with most organic solvents; insoluble in water. Combustible.
Derivation: Chlorination of ethyl ether.
Grades: Technical.
Containers: Glass bottles; iron drums; tank cars.
Hazard: Toxic by inhalation and ingestion; absorbed by skin; strong irritant. Tolerance, 5 ppm in air. Moderate fire hazard.
Uses: General solvent; selective solvent for production of high-grade lubricating oils; textile scouring

REF. 3

Dangerous Properties of Industrial Materials

Sixth Edition

N. IRVING SAX

Assisted by:

Benjamin Feiner/Joseph J. Fitzgerald/Thomas J. Haley/Elizabeth K. Weisburger

VAN NOSTRAND REINHOLD
New York

SYNS:

ACETYLEN — ETHYNE — ETHINE

TOXICITY DATA: 1 — CODEN:

ihl-mam LCLo:500000 ppm/5M	AEPPAE 138,65,28

OSHA Standard: Air: CL 2500 ppm FEREAC 39,-22001,74. DOT: Flammable Gas, Label: Flammable Gas FEREAC 41,57018,76. Occupational Exposure to Acetylene recm std: Air: CL 2500 ppm NTIS**. Reported in EPA TSCA Inventory, 1980.

THR: When mixed with O_2 in proportions of 40% or more, acetylene acts as a narcotic and has been used in anesthesia. Acetylene acts as a simple asphyxiant by diluting the O_2 in the air to a level which will not support life. However, the presence of impurities in commercial acetylene may result in the production of symptoms before an asphyxiant contribution is reached. Thus: 10% in air → slight intox; 20% → staggering gait; 30% → general incoordination; 33% → unconsciousness in 7 min; up to 80% → complete anesthesia, increased blood pressure, narcosis and stimulated respiration.

Dizziness, headache, mild gastric symptoms, and (in high conc) semi-asphyxia and brief loss of consciousness have all been reported. In general industrial practice, however, acetylene does not constitute a serious hazard. See argon for discussion of simple asphyxiants.

Fire Hazard: Very dangerous, when exposed to heat, flame or oxidizers.

Spontaneous Heating: No.

Explosion Hazard: Mod when exposed to heat or flame or by spont chemical reaction. At high pressures and even moderate temperatures, and in the absence of air acetylene has been known to decomp explosively. Incompatible with copper, brass, copper salts, copper carbide, pyroforic Co, Hg, Hg salts, K, Ag and Ag salts, RbH, CsH, halogens, HNO_3, NaH, and halogens. Acetylene + halide + UV can explode. Molten K ignites in C_2H_2 and then explodes. C_2H_2 reacts vigorously with trifluoromethyl hypofluorite. With O_2, C_2H_2 can detonate very powerfully. See acetylides.

Disaster Hazard: Dangerous; when ignited it burns with an intensely hot flame; can react vigorously with oxidizing materials.

To Fight Fire: CO_2, water spray, or dry chemical. Stop flow of gas.

For further information see Vol. 1, No. 2 of *DPIM Report.*

ACETYLENE CHLORIDE

mf: CHCCl; mw: 60.5

A gas. bp: −31°, vap. d: 2.0. mp: −126°.

SYN: CHLOROETHYNE

THR: Unk. Probably has anesthetic properties if inhaled. See also chlorinated HC, aliphatic.

Fire Hazard: Dangerous, by spont chemical reaction.

Spontaneous Heat: Spontaneously flammable in air.

Disaster Hazard: Dangerous; shock will explode it, when heated to decomp it emits highly tox fumes of phosgene, can react vigorously with oxidizing materials.

ACETYLENEDICARBOXAMIDE

CAS RN: 543215 — NIOSH #: AO 9900000

mf: $C_4H_4N_2O_2$; mw: 112.10

Produced by Str. Reticuli var. Aquamyceticus and is identical to Cellocidin

SYNS:

ACETYLENEDICARBOXYLIC ACID DIAMIDE — 2-BUTYNEDIAMIDE — AQUAMYCIN — CELLOCIDIN — LENAMYCIN

TOXICITY DATA: 3 — CODEN:

ipr-mus LD50:15 mg/kg	ARZNAD 17,693,67
ivn-mus LD50:11 mg/kg	12VXA5 9,12,76

Reported in EPA TSCA Inventory, 1980.

THR: HIGH ivn, ipr.

Disaster Hazard: When heated to decomp it emits tox fumes of NO_x.

ACETYLENEDICARBOXYLIC ACID MONOPOTASSIUM SALT

CAS RN: 928041 — NIOSH #: AP 0700000

mf: $C_4HO_4 \cdot K$; mw: 152.15

SYN: MONOPOTASSIUM SALT OF ACETYLENEDICARBOXYLIC ACID

TOXICITY DATA: 3 — CODEN:

orl-mus LD50:63 mg/kg	TXAPA9 17,733,70
ipr-mus LD50:32 mg/kg	TXAPA9 17,733,70
ivn-mus LD50:89 mg/kg	TXAPA9 17,733,70

Reported in EPA TSCA Inventory, 1980. EPA TSCA 8E No. 12780263—File closed as of April, 1979.

THR: HIGH orl, ipr, ivn.

Disaster Hazard: When heated to decomp it emits acrid smoke and fumes, KO_x.

ACETYLENE DICHLORIDE

CAS RN: 540590 — NIOSH #: KV 9360000

mf: $C_2H_2Cl_2$; mw: 96.94

SYNS:

1,2-DICHLOR-AETHEN (GERMAN) — SYM-DICHLOROETHYLENE — DICHLORO-1,2-ETHYLENE (FRENCH) — 1,2-DICHLOROETHYLENE — NCI-C56031

TOXICITY DATA: 2 — CODEN:

orl-rat LD50:770 mg/kg	ARSIM* 20,10,66
ipr-mus LD50:2000 mg/kg	JETOAS 7(4),247,74

Aquatic Toxicity Rating: TLm96:1000-100 ppm WQCHM* 3,-,74.

TLV: Air: 200 ppm DTLVS* 4,130,80. *Toxicology Review:* 27ZTAP 3,8,69. OSHA Standard: Air: TWA 200 ppm (SCP-H) FEREAC 39,23540,74. "NIOSH Manual of Analytical Methods" VOL 3 S110. Reported in EPA TSCA Inventory, 1980. EPA TSCA 8(a) Preliminary Assessment Information Proposed Rule FEREAC 45,13646,80.

THR: MOD orl ipr.

Disaster Hazard: When heated to decomp it emits highly tox fumes of Cl^-.

trans-ACETYLENE DICHLORIDE

CAS RN: 156605 NIOSH #: KV 9400000
mf: $C_2H_2Cl_2$; mw: 96.94

Colorless liquid, pleasant odor. mp: −50°, bp: 48°, flash p: 36°F, autoign. temp.: 860°F, lel = 9.7%, uel = 12.8%, d: 1.2743 @ 25°/4°, vap. press: 400 mm @ 30.8°, vap. d: 3.34.

SYNS:
TRANS-1,2-DICHLOROETHYLENE

TOXICITY DATA: 3-2-1	CODEN:
ihl-hmn TCLo:4800 mg/m3/10M:CNS	AHBAAM 116,131,36
ipr-rat LD50:7536 mg/kg	TXCYAC 7(2),141,77
ihl-mus LCLo:75000 mg/m3/2H	AHBAAM 116,131,36
ipr-mus LD50:4019 mg/kg	TXCYAC 7(2),141,77
ihl-cat LCLo:43000 mg/m3/6H	AHBAAM 116,131,36

Reported in EPA TSCA Inventory, 1980.
THR: HIGH hmn chl (CNS). MOD ihl; LOW ipr. Exposure to high conc of vapor can cause nausea, vomiting, weakness, tremor and cramps. Recovery is usually prompt following removal from exposure. Dermatitis may result from de-fatting action on skin.
Fire Hazard: Dangerous when exposed to heat, flame or oxidizers.
Spontaneous Heating: No.
Explosion Hazard: Mod, in the form of vapor when exposed to flame.
Disaster Hazard: Dangerous; see chlorides; can react vigorously with oxidizing materials.
To Fight Fire: Water, foam; CO_2, dry chemical.

ACETYLENE TETRABROMIDE

CAS RN: 79276 NIOSH #: KI 8225000
mf: $C_2H_2Br_4$; mw: 345.68

Colorless to yellow liquid. bp: 151° @ 54 mm, fp: −1°, d: 2.9638 @ 20°/4°, autoign. temp.: 635°F.

SYNS:
MUTHMANN'S LIQUID
1,1,2,2-TETRABROMAETHAN (GERMAN)
TETRABROMOACETYLENE
1,1,2,2-TETRABROMOETANO (ITALIAN)
S-TETRABROMOETHANE
1,1,2,2-TETRABROMOETHANE
1,1,2,2-TETRABROOMETHAAN (DUTCH)

TOXICITY DATA: 3	CODEN:
skn-rbt 500 mg/24H MOD	AIHAAP 24,28,63
eye-rbt 100 mg MLD	AIHAAP 24,28,63
dnr-esc 10 uL/disc	MUREAV 41,61,76
skn-mus TDLo:130 gm/kg/74W-I:NEO	JJIND8 63,1433,79
orl-rbt LD50:400 mg/kg	AMIHBC 2,407,50

TLV: Air: 1 ppm DTLVS* 4,7,80. OSHA Standard: Air: TWA 1 ppm (SCP-I) FEREAC 39,23540,74. DOT: ORM-A, Label: None FEREAC 41,57018,76. "NIOSH Manual of Analytical Methods" VOL 3 S117. Reported in EPA TSCA Inventory, 1980. EPA TSCA 8(a) Preliminary Assessment Information Proposed Rule FEREAC 45,13646,80. EPA TSCA 8E No. 10780254—Submission Received as of April, 1979.
THR: HIGH via orl and inhl. It is irr and narcotic. An exper NEO. MUT data.
Fire Hazard: Low.
To Fight Fire: Water foam, fog, CO_2, dry chemical.
Disaster Hazard: Dangerous; when heated it emits highly tox fumes of carbonyl bromide.

ACETYLENE TETRACHLORIDE

CAS RN: 79345 NIOSH #: KI 8575000
mf: $C_2H_2Cl_4$; mw: 167.84

Heavy, colorless, mobile liquid, chloroform-like odor. mp: −43.8°, bp: 146.4°, d: 1.600 @ 20°/4°.

SYNS:
1,1,2,2-CZTEROCHLOROETAN (POLISH)
1,1-DICHLORO-2,2-DICHLOROETHANE
NCI-C03554
1,1,2,2-TETRACHLOORETHAAN (DUTCH)
1,1,2,2-TETRACHLORAETHAN (GERMAN)
1,1,2,2-TETRACHLORETHANE (FRENCH)
SYM-TETRACHLOROETHANE
1,1,2,2-TETRACHLOROETHANE
1,1,2,2-TETRACLOROETANO (ITALIAN)
TETRACHLORURE D'ACETYLENE (FRENCH)

TOXICITY DATA: 3	CODEN:
dnr-esc 10 ul/plate	EVHPAZ 21,79,77
orl-rat TDLo:42 gm/kg/78W-I:ETA	NCITR* NCI-CG-TR-27,78
orl-mus TDLo:55 gm/kg/78W-I:CAR	NCITR* NCI-CG-TR-27,78
orl-mus TD:110 gm/kg/78W-I:CAR	NCITR* NCI-CG-TR-27,78
orl-hmn TDLo:30 mg/kg:CNS	PCOC** -,1110,66
ihl-hmn TCLo:1000 mg/m3/30M:CNS	AHBAAM 116,131,36
ihl-rat LCLo:1000 ppm/4H	JIHTAB 31,343,49
ihl-mus LCLo:9000 mg/m3/40M	AHBAAM 116,131,36
ipr-mus LDLo:30 mg/kg	CBCCI* 4,378,52
orl-dog LDLo:300 mg/kg	AJHYA2 16,325,32
ivn-dog LDLo:50 mg/kg	QJPPAL 7,205,34
ihl-cat LCLo:19000 mg/m3/45M	AHBAAM 116,131,36
scu-rbt LDLo:500 mg/kg	QJPPAL 7,205,34

Carcinogenic Determination: Animal positive IARC** 20,477,79. *Toxicology Review:* AIHAAP 40,A46,79; 27ZTAP 3,139,69. OSHA Standard: Air: TWA 5 ppm (skin) (SCP-I) FEREAC 39,23540,74. Occupational Exposure to 1,1,2,2-Tetrachloroethane recm std: Air: TWA 1 ppm NTIS**. NCI Carcinogenesis Bioassay Completed; Results positive: Mouse (NCITR* NCI-CG-TR-27,78). NCI Carcinogenesis Bioassay Completed; Results indefinite: Rat (NCITR* NCI-CG-TR-27,78). "NIOSH Manual of Analytical Methods" VOL 2 S124. NIOSH Current Intelligence Bulletin 27, 1978. Reported in EPA TSCA Inventory, 1980.
THR: HIGH via oral and inhal routes; MOD via dermal route. This is generally considered the most toxic of the common chlorinated HC. It has a fairly strong irritant action on mu mem of the eyes and upper respiratory tract; a conc of 3 ppm produces a detectable odor, thus an initial warning effect. Its narcotic action is stronger than that of chloroform, but because of

DICHLORODIPROPYLSTANNANE

CAS RN: 867367 NIOSH #: WH 7255000
mf: $C_6H_{14}Cl_2Sn$; mw: 275.79

Colorless crystals. Sol in organic solvents. mp: 81°.

SYNS:

DICHLORODIPROPYLTIN	DI-N-PROPYLTIN DICHLORIDE
DIPROPYLTIN CHLORIDE	DIPROPYLTIN DICHLORIDE

TOXICITY DATA: 3	CODEN:
orl-rat LDLo:160 mg/kg	BJIMAG 15,15,58

OSHA Standard: Air: TWA 100 ug(Sn)/m3 (skin) (SCP-X) FEREAC 39,23540,74. Occupational Exposure to Organotin Compounds recm std: Air: TWA 0.1 mg(Sn)/m3 NTIS**.
THR: HIGH orl. See also tin compounds and chlorides.
Disaster Hazard: When heated to decomp it emits tox fumes of Cl^-.

1,4-DICHLORO-2,3-EPOXYBUTANE

CAS RN: 3583479 NIOSH #: EJ 8050000
mf: $C_4H_6Cl_2O$; mw: 141.00

SYN: BUTANE, 1,4-DICHLORO-2,3-EPOXY

TOXICITY DATA: 2	CODEN:
mmo-klp 5 mmol/L	MUREAV 89,269,81
skn-rbt 10 mg/24H open MLD	AIHAAP 23,95,62
mma-sat 1 mmol/L	ARTODN 41,249,79
orl-rat LDLo:710 mg/kg	AIHAAP 23,95,62
skn-rbt LDLo:2830 mg/kg	AIHAAP 23,95,62

THR: An irr in rbt skn. MUT data. MOD via oral, inhal and dermal routes.
Disaster Hazard: Dangerous; see chlorides.

DICHLOROETHANE

CAS RN: 1300216 NIOSH #: KH 9800000
mf: $C_2H_4Cl_2$; mw: 98.96

Lel = 5.6%; uel = 11.4%.

TOXICITY DATA: 2	CODEN:
orl-rat LD50:1120 mg/kg	HYSAAV 32,349,67
orl-mus LD50:625 mg/kg	HYSAAV 32,349,67
ihl-mus LCLo:10 gm/m3	GISAAA 20(8),19,55
skn-rbt LD50:3890 mg/kg	UCDS** 3/23/70
ihl-rat TCLo:6000 ppm (6-15D preg) TER	TXAPA9 28,452,74
ihl-rat TCLo:6000 ppm (6-15D preg)	TXAPA9 28,452,74

THR: MOD orl in rat, mus. MOD skn in rbt.
Disaster Hazard: When heated to decomp it emits very tox fumes of Cl^-.

1,2-DICHLOROETHANE

mf: $C_2H_4Cl_2$; mw: 98.96

Lel = 6.2%; uel = 15.9%; flash p: 55.4°F.

Incomp: Dinitrogen tetraoxide; metals.
For further information see Vol. 1, No. 4 of *DPIM Report.*

2,2-DICHLOROETHANOL

CAS RN: 598389 NIOSH #: KK 4100000
mf: $C_2H_4Cl_2O$; mw: 114.96

TOXICITY DATA:	CODEN:
mmo-omi 80 uL/plate	CBINA8 30,9,80
mmo-asn 20 uL/plate/2H	CBINA8 30,9,80

Reported in EPA TSCA Inventory, 1980.
Disaster Hazard: When heated to decomp it emits tox fumes of Cl^-.

2,2-DICHLOROETHENYL DIETHYL PHOSPHATE

NIOSH #: TC 0280000
mf: $C_6H_{11}Cl_2O_4P$; mw: 249.04

SYNS:

DICHLORVOS-ETHYL	O-(2,2-DICHLORVINYL)-O,O-DI-ETHYLPHOSPHAT (GERMAN)
2,2-DICHLOROVINYL DIETHYL PHOSPHATE	

TOXICITY DATA: 3	CODEN:
mmo-sat 5 uL/plate	MUREAV 28,405,75
ipr-mus LD50:12 mg/kg	ARZNAD 5,746,55

THR: MUT data. HIGH ipr. See also esters.
Disaster Hazard: When heated to decomp it emits very tox fumes of Cl^- and PO_x.

DICHLORO(4-ETHOXY-o-PHENYLENEDI-AMMINE)PLATINUM (II)

NIOSH #: TP 2497050
mf: $C_8H_{12}Cl_2N_2OPt$; mw: 418.21

TOXICITY DATA:	CODEN:
mmo-sat 2500 nmol/L	JMCMAR 23,459,80
mma-sat 2500 nmol/L	JMCMAR 23,459,80

THR: MUT data. See also platinum compounds.
Disaster Hazard: When heated to decomp it emits very tox fumes of Cl^- and NO_x.

DI(2-CHLOROETHYL) ACETAL

CAS RN: 14689975 NIOSH #: KI 3600000
mf: $C_6H_{12}Cl_2O_2$; mw: 187.08

SYN: 1,1'-(ETHYLIDENE)BIS(OXY)BIS(2-CHLOROETHANE)

TOXICITY DATA: 3	CODEN:
orl-rat LD50:310 mg/kg	AIHAAP 30,470,69
skn-rbt LD50:200 mg/kg	AIHAAP 30,470,69

THR: HIGH orl. HIGH skn.
Disaster Hazard: When heated to decomp it emits tox fumes of Cl^-.

4-DI-2''-CHLOROETHYLAMINOAZOBENZENE-2'-CARBOXYLIC ACID

NIOSH #: DG 7450000
mf: $C_{17}H_{17}Cl_2N_3O_2$; mw: 366.27

SYN: 2-(p-((DI-2-CHLOROETHYL)AMINO)PHENYLAZO)-BENZOIC ACID

TOXICITY DATA:	CODEN:
sln-dmg-par 194 ng	BCPCA6 5,206,60

THR: MUT data.
Disaster Hazard: When heated to decomp it emits very tox fumes of Cl^- and NO_x.

9-(2-(DI(2-CHLOROETHYL)AMINO)-ETHYLAMINO)-6-CHLORO-2-METHOXY-ACRIDINE

CAS RN: 10072250 NIOSH #: AR 7525000
mf: $C_{20}H_{22}Cl_3N_3O \cdot 2ClH \cdot H_2O$; mw: 517.74

SYNS:
ICR-48B
NSC-34372
QUINACRINE ETHYL MUSTARD

TOXICITY DATA: 3	CODEN:
ipr-mus TDLo:16 mg/kg/4W:CARC	JNCIAM 36,915,66

THR: An exper CARC.
Disaster Hazard: When heated to decomp it emits very tox fumes of Cl^-, NO_x and HCl.

DICHLOROETHYLARSINE

CAS RN: 598141 NIOSH #: CH 3500000
mf: $C_2H_5AsCl_2$; mw: 174.89

Colorless liquid, fruity, biting, irr odor. mp: −65°, bp: 156° decomp, d: 1.742 @ 14°, vap. press: 2.29 mm @ 21.5°, vap. d: 6.03.

SYNS:
ARSENIC DICHLOROETHANE
DICK (GERMAN)
ETHYLDICHLOROARSINE

TOXICITY DATA: 3	CODEN:
ihl-hmn LCLo:14 ppm/30M	NTIS** PB214-270
ihl-mus LCLo:94 ppm/20M	ZGEMAZ 13,523,21
ihl-cat LCLo:12 ppm/40M	ZGEMAZ 13,523,21
scu-ca: LDLo:1 mg/kg	ZGEMAZ 13,523,21

Aquatic Toxicity Rating: TLm96:under 1 ppm WQCHM* 2,-,74.
THR: VERY HIGH via inhal and ivn, probably HIGH via oral routes as well. Very irr. See arsenic compounds. Used as a military poison gas.
Disaster Hazard: Dangerous; on contact with acid or acid fumes it emits highly tox fumes of arsenic and phosgene; will react with water or steam to produce tox and corrosive fumes. Can react with oxidizing materials.

2,2-DICHLOROETHYLCARBAMIC ACID ETHYL ESTER

CAS RN: 67049756 NIOSH #: EZ 4075000
mf: $C_5H_9Cl_2NO_2$; mw: 186.05

TOXICITY DATA: 3-2	CODEN:
ipr-mus LDLo:625 mg/kg	JPETAB 42,1,31
scu-rbt LDLo:1550 mg/kg	JPETAB 42,1,31
par-frg LDLo:300 mg/kg	JPETAB 42,1,31

THR: HIGH par. MOD ipr, scu. See also esters.
Disaster Hazard: When heated to decomp it emits very tox fumes of Cl^- and NO_x.

O,O-DI(2-CHLOROETHYL)-O-(3-CHLORO-4-METHYLCOUMARIN-7-YL) PHOSPHATE

CAS RN: 321551 NIOSH #: GN 5250000
mf: $C_{14}H_{14}Cl_3O_6P$; mw: 415.60

SYNS:
O,O-BIS(2-CHLOROETHYL) O-(3-CHLORO-4-METHYL-7-COUMARINYL) PHOSPHATE
3-CHLORO-7-HYDROXY-4-METHYLCOUMARIN BIS(2-CHLOROETHYL)PHOSPHATE
DI-(2-CHLOROETHYL)-3-CHLORO-4-METHYL-7-COUMARINYL PHOSPHATE
DI-(2-CHLOROETHYL) 3-CHLORO-4-METHYLCOUMARIN-7-YL PHOSPHATE

TOXICITY DATA: 2	CODEN:
orl-dom LD50:763 mg/kg	AJVRAH 41,1857,80
orl-rat LD50:900 mg/kg	FAZMAE 17,108,73
ipr-ckn LD50:800 mg/kg	BCPCA6 16,1183,67

Toxicology Review: RREVAH 46,1,73; PMDCAY 10, 85,74.
THR: MOD orl, ipr.
Disaster Hazard: When heated to decomp it emits very tox fumes of PO_x and Cl^-.

DICHLOROETHYLENE

CAS RN: 25323302 NIOSH #: KV 9250000
mf: $C_2H_2Cl_2$; mw: 96.94

TOXICITY DATA: 2	CODEN:
ihl-mus LCLo:76 gm/m3/2H	AEXPBL 83,235,18
ihl-gpg LCLo:155 gm/m3/1H	AEXPBL 83,235,18

THR: MOD ihl in mus and gpg.
Disaster Hazard: When heated to decomp it emits tox fumes of Cl^-.

1,1-DICHLOROETHYLENE

CAS RN: 75354 NIOSH #: KV 9275000
mf: $C_2H_2Cl_2$; mw: 96.94

Colorless volatile liquid. bp: 31.6°, lel = 7.3%, uel = 16.0%, fp: −122°, flash p: 0°F (OC), d: 1.213 @ 20°/4°, autoign. temp.: 1058°F.

SYNS:
CHLORURE DE VINYLIDENE (FRENCH)
1,1-DICHLOROETHENE
1-1-DCE
NCI-C54262
VINYLIDENE DICHLORIDE

TOXICITY DATA: 3	CODEN:
orl-rat TDLo:200 mg/kg (6-15D preg)	TXAPA9 49,189,79
ihl-rat TCLo:80 ppm/7H (6-15D preg)	TXAPA9 49,189,79
ihl-rbt TCLo:160 ppm/7H (6-15D preg)	TXAPA9 49,189,79
mmo-sat 5 ppb	MUREAV 57,141,78
mma-sat 3 ppb/2H	MUREAV 58,183,78
ihl-rat TCLo:55 ppm/52W-I:ETA	JTEHD6 4,15,78
ihl-mus TCLo:55 ppm/6H/1Y-I:ETA	EVHPAZ 21,25,77
skn-mus TDLo:4840 mg/kg:NEO	JJIND8 63,1433,79
ihl-rat TC:55 ppm/1Y-I:ETA	EVHPAZ 21,25,77

ihl-mus TC:55 ppm/43W-I:ETA	JTEHD6 4,15,78
ihl-hmn TCLo:25 ppm:SYS	CHINAG 11,463,76
orl-rat LD50:200 mg/kg	DCTODJ 1,63,77
ihl-rat LCLo:10000 ppm/24H	EXMPA6 20,187,74
ihl-mus LC50:98 ppm/22H	JTEHD6 3(5-6),913,77
orl-dog LDLo:5750 mg/kg	QJPPAL 7,205,34
ivn-dog LDLo:225 mg/kg	QJPPAL 7,205,34
scu-rbt LDLo:3700 mg/kg	QJPPAL 7,205,34

Aquatic Toxicity Rating: TLm96:1000-100 ppm WQCHM* 3,-,74. Carcinogenic Determination: Animal Positive IARC** 19,439,79.

TLV: Air: 10 ppm DTLVS* 4,432,80. *Toxicology Review:* CTOXAO 8,633,75; CMTVAS 10(3),49,73; NTIS** ORNL/TIRC-77/3. *Occupational Exposure to Vinyl Halides* recm std: Air: TWA 1 ppm; CL 5 ppm/15M NTIS**. NTP Carcinogenesis Bioassay Completed as of December 1980. "NIOSH Manual of Analytical Methods" VOL 4 266*. NIOSH Current Intelligence Bulletin 28, 1978. Reported in EPA TSCA Inventory, 1980. EPA TSCA 8(a) Preliminary Assessment Information Proposed Rule FERREAC 45,13646,80.

THR: An exper MUT, ETA, NEO, CARC. HIGH acute orl, ihl. See also vinyl chloride.

Fire Hazard: Highly dangerous, when exposed to heat or flame.

Explosion Hazard: Mod, in the form of gas, when exposed to heat or flame. Also can explode spontaneously; reacts violently with chlorosulfonic acid, HNO_3, oleum.

Disaster Hazard: Highly dangerous; see chlorides; can react vigorously with oxidizing materials.

To Fight Fire: Alcohol foam, CO_2, dry chemical.

Incomp: Air; chlorotri-fluoroethylene; ozone; perchloryl fluoride.

cis-DICHLOROETHYLENE

CAS RN: 156592 NIOSH #: KV 9420000
mf: $C_2H_2Cl_2$; mw: 96.94

Colorless liquid, pleasant odor. mp: −80.5°, bp: 59°, lel = 9.7%, uel = 12.8%, flash p: 39°F, d: 1.2743 @ 25°/4°, vap. press: 400 mm @ 41.0°, vap. d: 3.34.

SYNS:

1,2-DICHLOROETHYLENE ACETYLENE DICHLORIDE

TOXICITY DATA: 1 CODEN:

ihl-mus LCLo:65000 mg/m3/2H	AHBAAM 116,131,36
ihl-cat LCLo:20000 mg/m3/6H	AHBAAM 116,131,36

Reported in EPA TSCA Inventory, 1980.

THR: LOW via oral route. In high conc it is irr and narcotic. Has produced liver and kidney injury in exper animals.

Fire Hazard: Dangerous, when exposed to heat or flame. Reacts violently with N_2O_4, KOH, Na, NaOH.

Spontaneous Heating: No.

Explosion Hazard: Mod. in the form of vapor when exposed to flame.

Disaster Hazard: Dangerous; see chlorides; can react vigorously with oxidizing materials.

To Fight Fire: Water spray, foam, CO_2, dry chemical.

cis, 1,2-DICHLOROETHYLENE

mf: $C_2H_2Cl_2$; mw: 96.94

Flash p: 42.8°F; lel = 3.3%; uel = 15%.

trans-1,2-DICHLOROETHYLENE

mf: $C_2H_2Cl_2$; mw: 96.94

Flash p: 35.6°F; lel = 9.7%; uel = 12.8%.
Can cause fire hazard.

Incomp: Alkalies; difluoromethylene dihypofluorite; nitrogen tetraoxide.

1,2-DICHLOROETHYLENE CARBONATE

CAS RN: 3967553 NIOSH #: JH 7400000
mf: $C_3H_2Cl_2O_3$; mw: 156.95

TOXICITY DATA: 3 CODEN:

scu-mus TDLo:648 mg/kg/54W-I:ETA	JNCIAM 48,1431,72

THR: An exper ETA.

Disaster Hazard: When heated to decomp it emits tox fumes of Cl^-.

DICHLORO(ETHYLENEDIAMMINE)-PLATINUM(II)

CAS RN: 14096516 NIOSH #: TP 2497100
mf: $C_2H_8Cl_2N_2Pt$; mw: 326.11

TOXICITY DATA: 3 CODEN:

mmo-sat 2 ug/plate	MUREAV 77,45,80
mma-sat 2 ug/plate	MUREAV 77,45,80
ipr-mus LDLo:14 mg/kg	BICHBX 2,187,73

THR: MUT data. HIGH ipr. See also platinum compounds.

Disaster Hazard: When heated to decomp it emits very tox fumes of Cl^- and NO_x.

DI-2-CHLOROETHYL MALEATE

CAS RN: 63917066 NIOSH #: ON 1050000
mf: $C_8H_{10}Cl_2O_4$; mw: 241.08

TOXICITY DATA: 3 CODEN:

orl-rat LD50:71 mg/kg	TXAPA9 28,313,74
skn-rbt LD50:140 mg/kg	TXAPA9 28,313,74

THR: HIGH orl, skn.

Disaster Hazard: When heated to decomp it emits tox fumes of Cl^-.

2,3-DICHLORO-N-ETHYLMALEINIMIDE

CAS RN: 20198770 NIOSH #: ON 5175000
mf: $C_6H_5Cl_2NO_2$; mw: 194.02

SYN: N-ETHYL-DICHLOROMALEINIMIDE

TOXICITY DATA: 3 CODEN:

ipr-mus TDLo:6200 ug/kg/(9D preg):TER	ARTODN 37,15,76
ipr-mus LD50:15 mg/kg	ARTODN 37,15,76
ivn-mus LD50:5600 ug/kg	CSLNX* NX#03654

THR: MOD orl. A skn irr. See also aldehydes.
Disaster Hazard: When heated to decomp it emits acrid smoke and fumes.

TOLUENE

CAS RN: 108883 NIOSH #: XS 5250000
mf: C_7H_8; mw: 92.15

Colorless liquid, benzol-like odor. Flammable. mp: −95° to −94.5°, bp: 110.4°, flash p: 40°F (CC), ulc: 75-80, lel = 1.27%, uel = 7%, d: 0.866 @ 20°/4°, autoign. temp.: 896°F, vap. press: 36.7 mm @ 30°, vap. d: 3.14. Insol in water; sol in acetone; misc in absolute alc, ether, chloroform.

SYNS:

METHYLBENZENE	TOLUEEN (DUTCH)
METHYLBENZOL	TOLUEN (CZECH)
NCI-C07272	TOLUOL
PHENYLMETHANE	TOLUOLO (ITALIAN)

TOXICITY DATA: 3	CODEN:
cyt-rat-scu 12 gm/kg/12D-I	GTPZAB 17(3),24,73
ihl-rat TCLo:1500 mg/m3/24H (1-8D preg)	TXCYAC 11,55,78
ihl-rat TCLo:1000 mg/m3/24H (7-14D *preg*)	FMORAO 28,286,80
orl-mus TDLo:9 gm/kg (6-15D preg)	TJADAB 19,41A,79
orl-mus TDLo:15 gm/kg (6-15D preg)	TJADAB 19,41A,79
orl-mus TDLo:30 gm/kg (6-15D preg)	TJADAB 19,41A,79
ihl-mus TCLo:500 mg/m3/24H (6-*13D preg*)	TXCYAC 11,55,78
unk-rat LD50:6900 mg/kg	GISAAA 45(12),64,80
unk-mus LD50:2000 mg/kg	GISAAA 45(12),64,80
eye-hmn 300 ppm	JIHTAB 25,282,43
skn-rbt 435 mg MLD	UCDS** 7/23/70
eye-rbt 870 ug MLD	UCDS** 7/23/70
eye-rbt 2 mg/24H SEV	28ZPAK -,23,72
cyt-rat-ihl 610 mg/m3/16W-I	GISAAA 42(1),32,77
ihl-hmn TCLo:200 ppm:CNS	JAMAAP 123,1106,43
ihl-man TCLo:100 ppm:PSY	WEHSAL 9,131,72
orl-rat LD50:5000 mg/kg	AMIHAB 19,403,59
ihl-rat LCLo:4000 ppm/4H	AIHAAP 30,470,69
ipr-rat LDLo:800 mg/kg	TXAPA9 1,156,59
ihl-mus LC50:5320 ppm/8H	JIHTAB 25,366,43
ipr-mus LD50:1120 ug/kg	AGGHAR 18,109,60
skn-rbt LD50:14 gm/kg	UCDS** 7/23/70
scu-frg LDLo:920 mg/kg	AEPPAE 130,250,28

Aquatic Toxicity Rating: TLm96:100-10 ppm WQCHM* 4,-,74.

TLV: Air: 100 ppm DTLVS* 4,400,80. *Toxicology Review:* AEHLAU 22,373,71; CTOXAO 11(5),549,77; FNSCA6 2,67,73; MUREAV 47(2),75,78; CTOXAO 11(5),549,77; 27ZTAP 3,144,69. OSHA Standard: Air: TWA 200 ppm; CL 300; Pk 500/10M (SCP-V) FEREAC 39,23540,74. DOT: Flammable Liquid, Label: Flammable Liquid FEREAC 41,57018,76. Occupational Exposure to Toluene recm std: Air: TWA 100 ppm; CL 200 ppm/10M NTIS**. Currently Tested by NTP for Carcinogenesis by Standard Bioassay Protocol as of December 1980. Reselected by NTP Carcinogenesis Bioassay as of December 1980. "NIOSH Manual of Analytical Methods" VOL 1 127, VOL 3 S343. Reported in EPA TSCA Inventory, 1980. EPA TSCA 8(a) Preliminary Assessment Information Proposed Rule FERREAC 45,13646,80. EPA TSCA 8E No. *02780079P-Followup Sent as of April, 1979.*

THR: MUT data. A skn, eye irr. A hmn CNS, PSY. *MOD ihl*, ipr, scu; *HIGH* ipr; *LOW* orl, skn. Toluene is derived from coal tar, and commercial grades usually contain small amounts of benzene as an impurity. Acute poisoning, resulting from exposures to high conc of the vapors, are rare with toluene. *Inhal* of 200 ppm of toluene for 8 hrs may cause impairment of coordination and reaction time; with higher conc (up to 800 ppm) these effects are increased and are observed in a shorter time. In the few cases of acute toluene poisoning reported, the effect has been that of a narcotic, the workman passing through a stage of intoxication into one of coma. Recovery following removal from exposure has been the rule. An occasional report of chronic poisoning describes an anemia and leucopenia, with biopsy showing a bone marrow hypoplasia. These effects, however, are less common in people working with toluene, and they are not as severe.

Exposure to conc up to 200 ppm produces few symptoms. At 200-500 ppm, headache, nausea, eye irr, loss of appetite, a bad taste, lassitude, impairment of coordination and reaction time are reported, but are not usually accompanied by any laboratory or physical findings of significance. With higher conc, the above complaints are increased and in addition, anemia, leucopenia and enlarged liver may be found in rare cases.

A common air contaminant.

Fire Hazard: Slight, when exposed to heat, flame or oxidizers.
Explosion Hazard: Mod, when exposed to flame or reacted with (H_2SO_4 + HNO_3), N_2O_4, $AgClO_4$, BrF_3, UF_6.
Disaster Hazard: Mod dangerous; when heated it emits irr fumes; can react vigorously with oxidizing materials.
To Fight Fire: Foam, CO_2, dry chemical.
For further information see Vol. 2, No. 1 of *DPIM Report.*

p-TOLUENEBORONIC ACID, CYCLIC-2-METHYL-2-PROPYLTRIMETHYLENE ESTER

CAS RN: 2430468 NIOSH #: XS 7875000
mf: $C_{14}H_{21}BO_2$; mw: 232.16

SYNS:

DIOSSOBORONO	5-METHYL-5-PROPYL-2-(P-TOLYL)-1,3,2-DIOXABORINANE
2-METHYL-2-PROPYL-1,3-PROPANEDIOL-P-METHYLBENZENEBORONATE	

TOXICITY DATA: 2	CODEN:
ipr-rat LD50:1600 mg/kg	27ZQAG -,319,72
ipr-mus *LD50:3350 mg/kg*	27ZQAG -,319,72

THR: MOD ipr. See also boron compounds and esters.
Disaster Hazard: When heated to decomp it emits acrid smoke and fumes.

TOLUENEBORONIC ACID, CYCLIC NEOPENTANETETRYL ESTER

CAS RN: 7091410 NIOSH #: XS 7950000
mf: $C_{19}H_{22}B_2O_4$; mw: 336.03

4,5,7-TRICHLOROBENZTHIADIAZOLE-2,1,3

CAS RN: 1982554 NIOSH #: DL 0175000
mf: $C_6HCl_3N_2S$; mw: 239.50

SYN: 4,5,7-TRICHLORO-2,1,3-BENZOTHIADIAZOLE

TOXICITY DATA: 2	CODEN:
orl-rat LD50:1620 mg/kg	WRPCA2 9,119,70
orl-mus LD50:1500 mg/kg	31ZOAD 1,423,68

THR: MOD orl.
Disaster Hazard: When heated to decomp it emits very tox fumes of NO_x and SO_x.

TRICHLOROBENZYL CHLORIDE

CAS RN: 1344327 NIOSH #: XT 8575000
mf: $C_7H_4Cl_4$; mw: 229.91

SYN: TCBC

TOXICITY DATA: 2	CODEN:
orl-rat LD50:3075 mg/kg	28ZEAL 4,359,69

Toxicology Review: 27ZTAP 3,146,69. Reported in EPA TSCA Inventory, 1980.
THR: MOD orl.
Disaster Hazard: When heated to decomp it emits tox fumes of Cl^-.

3,4,4'-TRICHLOROCARBANILIDE

CAS RN: 101202 NIOSH #: FE 1250000
mf: $C_{13}H_9Cl_3N_2O$; mw: 315.59

SYN: N-(3,4-DICHLOROPHENYL)-N'-(4-CHLOROPHENYL)UREA

TOXICITY DATA: 3	CODEN:
ipr-mus LD50:2100 mg/kg	LPPTAK 27,306,79

Toxicology Review: 27ZTAP 3,146,69. Reported in EPA TSCA Inventory, 1980. EPA TSCA 8(a) Preliminary Assessment Information Proposed Rule FERREAC 45,13646,80.
THR: MOD ipr.
Disaster Hazard: When heated to decomp it emits very tox fumes of Cl^- and NO_x.

4,5,6-TRICHLORO-2-(2,4-DICHLOROPHENOXY) PHENOL

NIOSH #: SL 0532000
mf: $C_{12}H_5Cl_5O_2$; mw: 358.42

SYN: 2-(2,4-DICHLOROPHENOXY)-4,5,6-TRICHLOROPHENOL

TOXICITY DATA:	CODEN:
slt-mus-ipr 140 umol/L	MUREAV 46,202,77

THR: MUT data.
Disaster Hazard: When heated to decomp it emits tox fumes of Cl^-.

1,1,2-TRICHLORO-2,2-DIFLUOROETHANE

CAS RN: 354212 NIOSH #: KI 1435000
mf: $CHCl_3F_2$; mw: 157.37

SYN: UCON FLUOROCARBON 122

TOXICITY DATA: 2	CODEN:
orl-rat LDLo:7500 mg/kg	16CZAC 20,459,66
ihl-rat LCLo:4000 ppm/4H	UCMH** 11,15,62

THR: MOD orl, ihl.
Disaster Hazard: When heated to decomp it emits very tox fumes of F^- and Cl^-.

TRICHLORODINITROBENZENE

CAS RN: 8003461 NIOSH #: CZ 7960000
mf: $C_6HCl_3N_2O_4$; mw: 271.44

SYNS:
BRASSISAN (GERMAN)
DINITROTRICHLOROBENZENE ISOMERIC MIXTURE

TOXICITY DATA: 2	CODEN:
orl-rat LD50:425 mg/kg	GUCHAZ 6,516,73
skn-rat LD50:425 mg/kg	GUCHAZ 6,516,73

THR: MOD, via oral and dermal routes. See also benzene and nitrobenzene. A pesticide.
Fire Hazard: Mod, when exposed to heat or flame. See nitrates.
Explosion Hazard: See nitrates.
Disaster Hazard: Dangerous; when heated to decomp it emits highly tox fumes of NO_x and Cl^-; can react vigorously with reducing materials.

TRICHLORO ESTERTIN

NIOSH #: WH 8240000

SYN: ESTERTRICHLOROSTANNANE

TOXICITY DATA: 1	CODEN:
unk-rat LD50:5500 mg/kg	TIUSAD 107,1,76

Occupational Exposure to Organotin Compounds recm std: Air: TWA 0.1 mg(Sn)/m3 NTIS**.
THR: LOW unk. See also tin compounds and esters.
Disaster Hazard: When heated to decomp it emits tox fumes of Cl^-.

1,1,1-TRICHLOROETHANE

CAS RN: 71556 NIOSH #: KJ 2975000
mf: $C_2H_3Cl_3$; mw: 133.40

Colorless liquid. bp: 74.1°, fp: −32.5°, flash p: none, d: 1.3376 @ 20°/4°, vap. press: 100 mm @ 20.0°. Insol in water; sol in acetone, benzene, carbon tetrachloride, methanol, ether.

SYNS:
CHLOROETHENE
CHLOROTHANE NU
CHLOROTHENE
METHYL CHLOROFORM
METHYLTRICHLOROMETHANE
NCI-C04626
1,1,1-TRICHLOORETHAAN (DUTCH)
1,1,1-TRICHLORAETHAN (GERMAN)
TRICHLORO-1,1,1-ETHANE (FRENCH)
ALPHA-TRICHLOROETHANE
1,1,1-TRICLOROETANO (ITALIAN)

TOXICITY DATA: 2-1	CODEN:
ihl-rat TCLo:2100 ppm/24H (14D pre/1-20D preg)	TOXID9 1,28,80
eye-man 450 ppm/8H	BJIMAG 28,286,71
skn-rbt 5 gm/12D-I MLD	AIHAAP 19,353,58

skn-rbt 500 mg/24H MOD	28ZPAK -,28,72
eye-rbt 100 mg MLD	AIHAAP 19,353,58
eye-rbt 2 mg/24H SEV	28ZPAK -,28,72
ihl-man LCLo:27 gm/m3/10M	JOCMA7 8,358,66
ihl-man TCLo:350 ppm:PSY	WEHSAL 10,82,73
orl-hmn TDLo:670 mg/kg:GIT	NTIS** PB257-185
ihl-hmn TCLo:920 ppm/70M:CNS	AIHAAP 19,353,58
orl-rat LD50:10300 mg/kg	NTIS** PB257-185
ihl-rat LCLo:1000 ppm	FMCHA2 -,D317,80
ipr-rat LD50:5100 mg/kg	NTIS** PB257-185
orl-mus LD50:11240 mg/kg	NTIS** PB257-185
ihl-mus LCLo:11000 ppm/2H	HBTXAC 5,72,59
ipr-mus LD50:4700 mg/kg	TXAPA9 13,287,68
orl-dog LD50:750 mg/kg	FMCHA2 -,D317,80
ipr-dog LD50:3100 mg/kg	TXAPA9 10,119,67
ivn-dog LDLo:95 mg/kg	HBTXAC 5,72,59
orl-rbt LD50:5660 mg/kg	AIHAAP 19,353,58
scu-rbt LDLo:500 mg/kg	HBTXAC 5,72,59
orl-gpg LD50:9470 mg/kg	AIHAAP 19,353,58

Aquatic Toxicity Rating: TLm96:100-10 ppm WQCHM* 3,-,74. Carcinogenic Determination: Indefinite IARC** 20,515,79.

TLV: Air: 350 ppm DTLVS* 4,269,80. *Toxicology Review:* FAZMAE 18,365,74; EATR** EB-TR-75047; AIHAAP 40,A46,79. OSHA Standard: Air: TWA 350 ppm (SCP-J) FEREAC 39,23540,74. DOT: ORM-A, Label: None FEREAC 41,57018,76. Occupational Exposure to 1,1,1-Trichloroethane recm std: Air: CL 350 ppm/15M NTIS**. NCI Carcinogenesis Bioassay Completed; Results Negative (NCITR* NCI-CG-TR-3,77). Currently Tested by NTP for Carcinogenesis by Standard Bioassay Protocol as of December 1980. "NIOSH Manual of Analytical Methods" VOL 1 127, VOL 3 S328. NIOSH Current Intelligence Bulletin 27, 1978. Reported in EPA TSCA Inventory, 1980. EPA TSCA 8(a) Preliminary Assessment Information Proposed Rule FERREAC 45,13646,80.

THR: In hmn it causes PSY, GIT, CNS effects. A MOD skn irr, a SEV eye irr in rbts. LOW orl, ipr, ihl in rat, mus. MOD orl, ipr dog; Narcotic in high conc. Causes a proarrhythmic activity which sensitizes the heart to epinephrine-induced arrhythmias. This sometimes will cause a cardiac arrest particularly when this material is massively inhaled as in drug abuse for euphoria. Reacts violently with N_2O_4, O_2, O_2 liquid, Na, NaOH, Na-K alloy.

Disaster Hazard: Dangerous; see chlorides.

For further information see Vol. 2, No. 1 of *DPIM Report.*

1,1,2-TRICHLOROETHANE

CAS RN: 79005 NIOSH #: KJ 3150000
mf: $C_2H_3Cl_3$; mw: 133.40

Liquid, pleasant odor. bp: 114°, fp: −35°, d: 1.4416 @ 20°/4°, vap. press: 40 mm @ 35.2°.

SYNS:
ETHANE TRICHLORIDE
NCI-C04579
BETA-TRICHLOROETHANE
1,1,2-TRICHLOROETHANE
TRICHLOROETAN(1,1,2) (POLISH)
VINYL TRICHLORIDE

TOXICITY DATA: 3	CODEN:
skn-rbt 500 mg open MLD	UCDS** 6/28/72
skn-rbt 810 mg/24H SEV	JETOAS 9,171,76
eye-rbt 162 mg MLD	JETOAS 9,171,76
skn-gpg 1440 mg/15M	APTOA6 41,298,77
cyt-gpg-skn 2880 ug/kg	APTOA6 41,298,77
orl-mus TDLo:76 gm/kg/78W-I:CAR	NCITR* NCI-CG-TR-74,78
orl-mus TD:152 gm/kg/78W-I:CAR	NCITR* NCI-CG-TR-74,78
orl-rat LD50:1140 mg/kg	UCDS** 6/28/72
ihl-rat LCLo:500 ppm/8H	AIHAAP 30,470,69
ipr-mus LD50:994 mg/kg	TXAPA9 9,139,66
scu-mus LD50:227 mg/kg	JPETAB 123,224,58
orl-dog LDLo:500 mg/kg	AJHYA2 16,325,32
ipr-dog LD50:450 mg/kg	TXAPA9 10,119,67
ivn-dog LDLo:95 mg/kg	QJPPAL 7,205,34
ihl-cat LCLo:13100 mg/m3/4.5H	AHBAAM 116,131,36
scu-rbt LDLo:500 mg/kg	QJPPAL 7,205,34

Aquatic Toxicity Rating: TLm96:100-10 ppm WQCHM* 3,-,74. Carcinogenic Determination: Animal Positive IARC** 20,533,79.

TLV: Air: 10 ppm (skin) DTLVS* 4,406,80. *Toxicology Review:* FAZMAE 18,365,74; AIHAAP 40,A46,79; 27ZTAP 3,146,69. OSHA Standard: Air: TWA 10 ppm (skin) (SCP-J) FEREAC 39,23540,74. NCI Carcinogenesis Bioassay Completed; Results Positive: Mouse (NCITR* NCI-CG-TR-74,78). NCI Carcinogenesis Bioassay Completed; Results Negative: Rat (NCITR* NCI-CG-TR-74,78). "NIOSH Manual of Analytical Methods" VOL 1 127, VOL 2 S134. NIOSH Current Intelligence Bulletin 27, 1978. Reported in EPA TSCA Inventory, 1980. EPA TSCA 8(a) Preliminary Assessment Information Proposed Rule FERREAC 45,13646,80.

THR: HIGH ivn, scu and MOD orl, ihl, ipr and dermal. MOD skn irr and SEV eye irr in rbts. Trichloroethane has narcotic properties and acts as a local irr to the eyes, nose and lungs. It may also be injurious to the liver and kidneys. A fumigant. An exper CARC. MUT data.

Disaster Hazard: Dangerous; see chlorides.

Incomp: K.

For further information see Vol. 2, No. 6 and Vol. 3, No. 2 of *DPIM Report.*

1,1,1-TRICHLOROETHANE mixed with TETRACHLOROETHYLENE (3:1)

NIOSH #: KJ 3950000

SYNS:
DOWCLENE
EC CLEANER

TOXICITY DATA: 2-1	CODEN:
orl-rat LD50:15 gm/kg	AIHAAP 24,541,63
ihl-rat LC50:3700 ppm/7H	AIHAAP 24,541,63
orl-mus LD50:10 gm/kg	AIHAAP 24,541,63
orl-rbt LD50:13 gm/kg	AIHAAP 24,541,63
orl-gpg LD50:6 gm/kg	AIHAAP 24,541,63

THR: LOW orl, ihl in rat; LOW orl in mus; orl in rbt and orl in gpg.

Disaster Hazard: When heated to decomp it emits very tox fumes of Cl^-.

REF. 4

Employee and Environmental Safety

May 21, 1985

Mr. Tom Tiesler
Director
Division of Solid Waste Management
Department of Health and Environment
4th Floor, Custom House
701 Broadway
Nashville, Tennessee 37219-5403

Dear Tom:

The purpose of this letter is to advise you of a chemical waste site once used by a division of Genesco Inc. (the "Company" or "Genesco") and to solicit the assistance and approval of the Tennessee Department of Health and Environment (the "Department") with respect to certain actions the Company proposes to take.

The Company is a Tennessee corporation with its executive offices located at Genesco Park, Nashville, Tennessee. Genesco operates in two major industry segments - footwear and men's apparel - and employs approximately 3,900 persons in the State of Tennessee. General Adhesives, formerly known as General Adhesives and Chemical Company, is a division of Genesco's footwear segment which operates a manufacturing plant at 6100 Centennial Boulevard in Nashville, Tennessee. General Adhesives manufactures and sells specialty industrial and consumer products, which include adhesives, sealants and coatings utilizing solvent based, thermoplastic and water based technologies. It is a generator (EPA I.D. Number TND 001981240) and transporter (EPA I.D. Number TND 001367549) of hazardous waste currently disposed of at either the Stauffer Chemical Company, Mt. Pleasant, Tennessee or Chemical Waste Management Company, Emelle, Alabama.

It has recently been brought to the attention of Genesco's corporate management that for a limited period of time during the summer and/or fall of 1978, approximately eight hundred 55-gallon barrels of waste material from General Adhesives were disposed of in a rural area in Williamson County, Tennessee. Preliminary indications are that some of the waste

Genesco Inc.
Genesco Park
Nashville TN 37202

615 367 8417

(approximately 50-80 barrels) was buried in the barrels and the remainder was poured from barrels into phosphate pits or earthen trenches. The disposal site is an approximately two acre section of a 146 acre farm owned by Emmett N. Kennon located in the fifteenth civil district of Williamson County, Tennessee on the east side of Wilson Pike between Moores Lane and Split Log Road (the "Kennon Property"). Enclosed is a copy of a map showing the location of the Kennon Property and the approximate location of the disposal site.

The exact amount and contents of the waste material are unknown; however, it is believed that it contained water based adhesives and may have contained acetone; ethyl acetate; hexane; methylene chloride; methyl ethyl ketone; rubber solvent; toluene; 1,1,1-trichloroethane; trichloroethylene and organic fillers. A large portion of the organic solvents that was poured into the phosphate pits and earthen trenches may have evaporated, but it is believed that approximately 50-80 barrels were buried on the Kennon Property and may still contain waste material.

Having been informed of the reported waste disposal, corporate management immediately instructed its counsel to undertake an investigation of this matter. Based on the preliminary findings of that investigation, the Company developed the general plan of action outlined herein and arranged for a meeting with you. The plan has been developed in consultation with Mr. V. Wayne McCoy of Resource Consultants Inc. of Brentwood, Tennessee. Implementation of the plan calls for the employment of hydrogeologists, soil geologists and other experts, possibly including a waste disposal firm.

The details of the plan and the retention of experts and others to carry out the plan are subject to the Department's approval, and representatives of the Department are invited to observe or participate in all aspects of its implementation.

The first phase of the plan, as proposed by Genesco, is designed, through hydrogeological study, to:

1. Identify more specifically the area and volume of the land area on the Kennon Property that has been used for disposal of waste generated by General Adhesives;

2. Determine the extent to which chemical waste generated by General Adhesives is still present in the soil in and around the disposal site;

3. Determine the existence and direction of possible surface water flows and subsurface aquifers in and around the disposal site;

4. Determine if any of the chemicals generated by General Adhesives is present in any surface water or groundwater in and around the disposal site; and

5. Develop a report regarding the environmental impact and preliminary recommendations for any corrective action indicated.

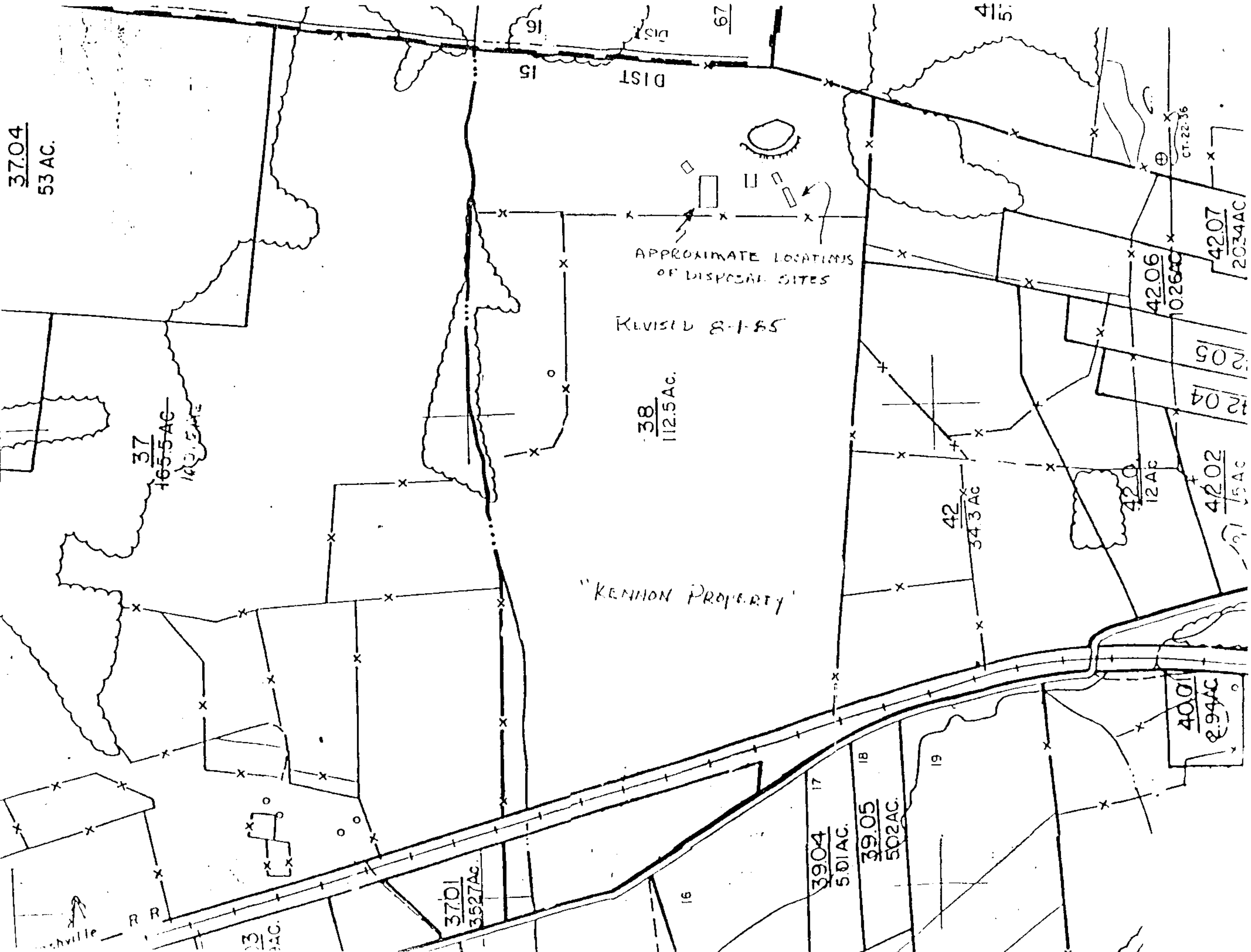
Subject to Department approval, Genesco proposes to retain the services of Resource Consultants and Geologic Associates Inc. of Franklin, Tennessee, as soon as possible to perform the initial surveys, tests and analyses to define the nature and extent of any environmental problem that may exist on the Kennon Property and surrounding area.

Genesco will meet with appropriate Department representatives to review the results of the surveys, tests and analyses and to more fully develop any preliminary plan for any remedial action.

If waste removal and site cleanup is required, the Company will retain the services of a Department-approved firm to excavate, exhume, analyze, transport and dispose of contaminated material. Any cleanup and removal required will be subject to necessary pre-closure site tests and analyses conducted by Geologic Associates Inc. or other approved firms.

Sincerely,

Ralph Mosely
Director



APPROXIMATE LOCATIONS OF DISPOSAL SITES
REVISED 8-1-85
38
112.5 Ac.
"KENNON PROPERTY"
37.04
53 AC.
37
165.5 AC
42
34.3 Ac
42.0
12 Ac
42.02
42.06
10.26 AC
42.07
20.34 AC
40.01
2.94 AC
39.04
5.01 AC.
39.05
5.02 AC.
37.01
35.27 Ac.
DIST
15
16
67
17
18
19
CT-22-36
R R

REF. 5

Olcy

Leipers and Catheys Formations

Limestone, argillaceous, nodular and shaly, medium dark gray to brownish-gray, fine-grained, thin-bedded, fossiliferous; limestone, dark-gray (weathers to pale yellowish-brown), fine-grained, thin- to medium-bedded; calcarenite, medium light-gray to brownish-gray, coarse-grained, medium-bedded, crossbedded, phosphatic, weathers to brown phosphatic residuum; and thin zones of limestone, clayey, medium-gray (weathers to light-gray surface), cryptocrystalline, medium-bedded, breaks with conchoidal fracture, present only in the north. At base of formation is shaly limestone or calcareous shale, olive-gray to yellowish-brown, fine-grained, which typically contains large numbers of bryozoans (*Constellaria* zone). Thickness 120 to 200 feet.

Obc

Bigby-Cannon Limestone

The Bigby-Cannon Limestone in the Franklin quadrangle consists of three facies—the Cannon limestone, Dove-colored limestone, and Bigby limestone—which replace each other laterally and vertically. The Bigby comprises the upper and lower parts of the formation, whereas the middle part includes all three facies. The formation ranges in thickness from 70 to 130 feet.

Cannon limestone facies is medium dark-gray to brownish-black, microcrystalline to medium-grained, thin- to medium-bedded, evenly bedded. Composite thickness 10 to 40 feet.

Dove-colored limestone facies is medium light-gray to medium-gray (weathers to a characteristic light-gray surface), cryptocrystalline, medium and evenly bedded, brittle, breaks with pronounced conchoidal fracture, contains specks and stringers of clear calcite. Composite thickness 5 to 30 feet.

Bigby limestone facies is calcarenite, medium light-gray to brownish-gray, coarse-grained, medium-bedded, crossbedded, contains brown phosphate pellets, weathers to brown phosphatic residuum. Composite thickness 60 to 100 feet.

Oh

Hermitage Formation

Coquina facies at top is limestone with disseminated silt and shale partings, medium-gray to brownish-gray, medium-bedded, characterized by numerous shells of the brachiopod *Resserella fertilis* (formerly *Dalmanella fertilis*). Thickness 10 to 20 feet.

Laminated argillaceous limestone facies is silty to sandy, medium-gray to dark-gray (weathers to pale to dark yellowish-brown), very fine- to medium-grained, laminated to thin-bedded with thin shale partings. Thickness about 40 to 75 feet.

Curdsville Limestone Member at base is medium- to dark-gray, fine- to medium-grained, thin-bedded with thin shale partings, fossiliferous. Thickness 0 to 5 feet.

Thickness of formation 50 to 100 feet.

Oc

Carters Limestone

Upper member is limestone, medium light-gray to brownish-gray and yellowish-brown, very fine-grained to cryptocrystalline, thin-bedded with thin shale partings. Thickness 5 to 10 feet.

Bentonite (T-3 bed), green when fresh but weathers to white and greenish-yellow sticky clay, 6 to 12 inches thick; occurs between upper and lower members, but rarely seen in natural outcrops. (This is the "Pencil Cave" of drillers' terminology in Central Tennessee.)

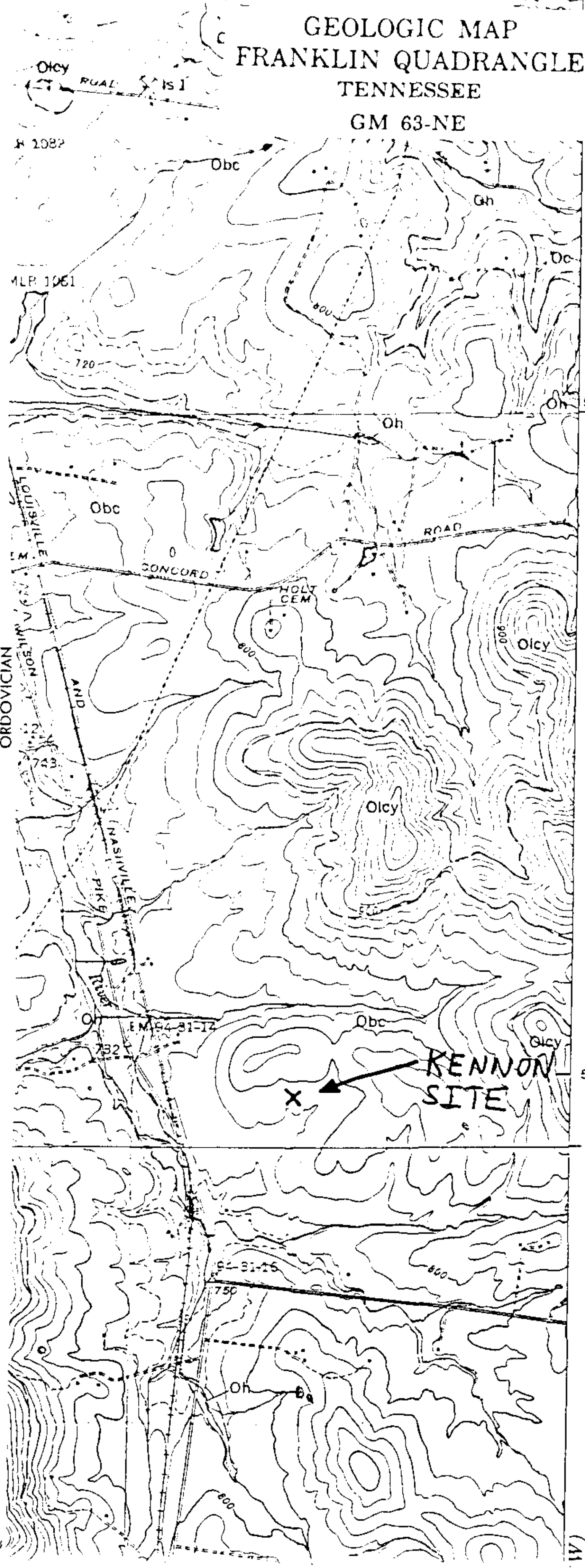
Lower member is limestone, medium light-gray to brownish-gray and yellowish-brown, cryptocrystalline to very fine-grained with some beds ranging up to coarse-grained, medium- to thick-bedded, with minor amounts of saccharoidal magnesian limestone as small irregular mottlings, and thin bands and lenses of chert locally. Thickness about 60 to 70 feet.

Olb

Lebanon Limestone

Limestone, medium- to medium dark-gray and brownish-gray to yellowish-brown, cryptocrystalline to very fine-grained with some beds ranging up to coarse-grained, thin-bedded with thin calcareous shale partings, fossiliferous. Maximum exposed thickness about 30 feet.

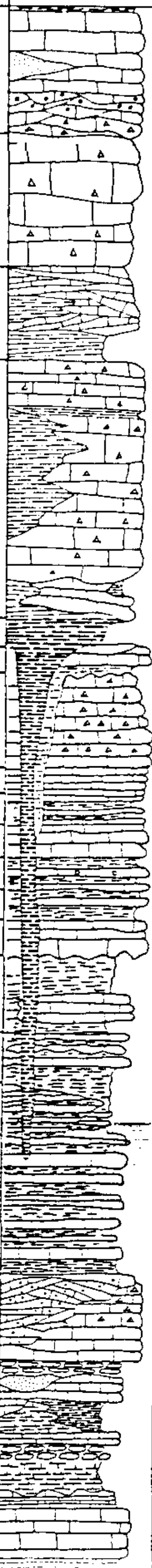
ORDOVICIAN



REF.6

BEDROCK GEOLOGY OF THE NASHVILLE AND MIDDLE TENNESSEE AREA

SYSTEM	GROUP	FORMATION	ROCK STRATA	AVERAGE THICKNESS ft.	RANGE OF THICKNESS ft.
MISSISSIPPIAN		STE. GENEVIEVE (MONTEAGLE)		250	180-350
		ST. LOUIS		180	100-280
		WARSAW		100	40-150
		FT. PAYNE		250	200-400
DEVONIAN		CHATTANOOGA		20	10-70
		PEGRAM		17	0-30
		CAMDEN		95	0-220
		FLAT GAP		20	0-55
		ROSS		45	0-110
SILURIAN		DECATUR		VARIABLE	0-250
		BROWNSPORT			
	WAYNE				
		BRASSFIELD			
ORDOVICIAN		SEQUATCHIE		55	0-275
	MAYSVILLE	LEIPERS		70	0-160
	EDEN	INMAN		50	0-70
	NASHVILLE	CATHEYS		130	10-250
		BIGBY CANNON		80	50-100
		HERMITAGE		120	70-180
		CARTERS		60	37-93



GENERALIZED DESCRIPTION OF ROCKS OUTCROPPING IN NASHVILLE AND MIDDLE TENNESSEE.

STE. GENEVIEVE LIMESTONE: Gray to white limestone, variable bedding thickness, oolitic layers, gray chert near base. Weathers to present ground water table, very cavernous, develops karst topography, weathers to reddish brown clay 20-40 feet thick. Outcrops on Northern Highland Rim.

ST. LOUIS FORMATION: Brownish gray cherty limestone, thick bedded to massive, numerous gray to black chert beds and nodules. Weathers deep to present ground water table, develops karst topography, weathers to reddish brown clay about 20 feet thick. Outcrops on Highland Rim.

WARSAW LIMESTONE: Gray, cross bedded limestone, massive, fine grained, some chert. Weathers deep but sinkhole development not as intense as St. Louis Formation. Sandy and shaley facies near base. Weathers to reddish brown clay about 20 feet deep. Outcrops on Highland Rim.

FORT PAYNE FORMATION: Dark gray siltstone, shale, and cherty limestone. Thin beds of crinoidal limestone, green shale at base (Maury Shale), contains phosphate nodules. Weathers to residual cherty clay about 15 feet deep. Outcrops along Highland Rim and higher hills within Central Basin. Excellent road metal.

CHATTANOOGA SHALE: Dark grayish black fissile, carbonaceous shale, thin sandstone at base. Weathers to light buff clay. Outcrops on Highland Rim and on higher hills within Central Basin. Widely used by geologists as a mapping unit, both in surface and subsurface.

PEGRAM FORMATION: Light grey limestone, massive. Minor amounts of light gray shale and sandstone in lower portion. Outcrops mainly in the Kingston Springs area.

CAMDEN FORMATION: Thin to medium bedded blue gray, shaley limestone containing nodules and bands of chert. Chert beds average 6 to 12 inches thick and are separated by white clay partings. Weathers to thin residual soil less than three feet thick then a thicker weathered layer of angular blocks and sharp fragments of chert rubble. Very difficult to drill or excavate with conventional excavation equipment. Outcrops mainly in Benton, Decatur, and Perry counties. Chert beds are used locally as road metal and ballast.

FLAT GAP LIMESTONE: Light gray and pink limestone, occasionally glauconitic in upper part. Outcrops in extreme western counties of Highland Rim. Very good concrete aggregate.

ROSS FORMATION: Alternating facies of thin limestone and thick shales. Shales are blue or greenish grey. Limestones weather to glades and shales generally do not have slope stability on steep road cuts.

SILURIAN SYSTEM: Extremely variable in outcrop and thickness. Major unconformity extends from base of Mississippian System through Devonion and Silurian Systems. Silurian is predominantly limestone and shaley limestone. See Tennessee Division Geology Bulletin 56 for complete description.

SEQUATCHIE FORMATION: Greenish gray, massive mudstone with some sand, shale, and limestone. Contains Mannie Shale Facies which is a green calcareous shale that weathers into laminated cobbles of green silt. Outcrops mostly in Lincoln, Franklin, and Marion Counties. Contains Fernvale Limestone Facies, which is an irregular bedded massive limestone containing enough limonite to be a low grade iron ore.

LEIPERS FORMATION: Dark blue gray, earthy, nodular limestone. Thin beds of limestone separated by shale mudstone and siltstone beds from a few inches to 10 feet thick. Weathers to light brown silty clay soil 3 to 5 feet thick. Weathering along fractures and faults can penetrate 20 feet into rock mass. Outcrops mostly along edge of Central Basin.

INMAN FORMATION: Greenish grey calcareous shale interbedded with thin beds of dense limestone. Weathers to thin clay soil. Outcrops in southeastern part of Middle Tennessee is a very restricted outcrop belt.

CATHEYS FORMATION: A complex mixture of shaley limestone units. Typically it is thin bedded, blue gray nodular limestone interbedded with thin partings of shale and siltstone. Weathers to thin silty clay soil usually 3 to 4 feet thick. Outcrops extensively in Central Basin.

BIGBY CANNON LIMESTONE: Composed of 3 facies; (1) the Bigby facies is blue gray, massive, granular, cross bedded, and phosphatic. (2) Dove facies is a light gray (Dove colored) dense fine grained limestone. (3) Cannon facies is blue gray limestone, massive but non-phosphatic. All facies weather to reddish-brown clay usually less than 10 feet thick. Some sinkhole development and considerable deep weathering along vertical fractures. Outcrops in Central Basin. Mined for phosphate in several counties of Central Basin.

HERMITAGE FORMATION: Variable rock units consisting of thin-bedded, dark blue-grey shaley limestone and sandy limestone in northwest part of Central Basin. Persistent layer of shale and phosphatic shale in central part of Central Basin. Silty shale and nodular limestone in south part of Central Basin. Weathers to a silty and sandy clay up to 20 feet thick. Outcrops extensively in Central Basin.

CARTERS LIMESTONE: Contains upper and Lower member separated by T^3 bentonite clay. Upper member is thin bedded, light gray shaley limestone about 10 feet thick. Lower member is massive, light gray, fine grained limestone about 50 feet thick and contains T^2 and T^1 bentonite clays. Weathers to brown plastic clay about 4 feet thick with some sink holes. Outcrops extensively in Central Basin.

LEBANON LIMESTONE: Blue-gray, dense, fine-grained, thin-bedded limestone. Bedding planes contain thin shale layers, weathers to loose slabs of limestone with very little residual soil. Forms cedar glades and has worm-eaten [illegible]

REF. 7

CHP - 2/23/
DAS 2/23
File
SCA - 2/26

United States Department of the Interior

GEOLOGICAL SURVEY
Water Resources Division
Tennessee District

A-413 Federal Bldg.
U.S. Courthouse
Nashville, TN 37203
February 19, 1987

Mr. Todd Hughes
Tennessee Department of Health
and Environment
Customs House - 4th Floor
701 Broadway
Nashville, TN 37219-5403

94-508 (1)

Dear Todd:

We have completed observation well installations and logging for the Genesco Hazardous Waste Site Investigation. Enclosed please find tables of data on the new wells and a sample resistivity log. We are completing a first draft of a basic data report on the site study, but we thought that both you and Geraghty and Miller would like to have preliminary copies of this data. If you approve, let me know and I'll route copies to Don Brice of Geraghty and Miller.

Sincerely yours,

FOR THE DISTRICT CHIEF

Roger W. Lee

Roger W. Lee

Enclosure

LOCAL WELL NUMBER	LATITUDE (DEGREES)	LONGITUDE (DEGREES)	ALTITUDE OF LAND SURFACE (FEET)	DATE WELL CONSTRUCTED	DEPTH OF WELL (FEET)
WM:N-020	355809	0864626	740	10-18-84	350
WM:N-022	355805	0864627	710	05-01-81	158
WM:N-023	355756	0864625	720	08-14-85	1050
WM:N-024	355724	0864617	750	06-27-84	240
WM:N-033	355707	0864509	830	08-17-74	150
WM:N-038	355706	0864431	890	--	175
WM:N-039	355712	0864539	766.9	11-03-78	220
WM:N-040	355723	0864614	760	--	350
WM:N-041	355700	0864544	780.1	06-23-86	45.0
WM:N-041A	355700	0864544	780	09-23-86	225
WM:N-042	355701	0864557	754.0	06-23-86	35.0
WM:N-042A	355701	0864557	753.8	09-22-86	193
WM:N-043	355720	0864606	737.6	06-24-86	28.0
M:N-043A	355720	0864606	738.4	10-07-86	102
1:N-044	353718	0864610	744.1	06-25-86	34.1
M:N-044A	353718	0864610	738.8	10-07-86	102
WM:N-045	355723	0864533	812.6	06-26-86	49.0
WM:N-045A	355723	0864532	812.6	10-10-86	167
WM:N-046	355732	0864602	758.0	06-30-86	30.0
WM:N-046A	355732	0864602	758.7	10-09-86	135
WM:N-047	355738	0864551	762.4	07-01-86	20.0
WM:N-047A	355738	0864551	759.9	10-09-86	162
WM:N-048	355733	0864540	806.4	07-01-86	45.0
WM:N-048A	355733	0864540	808.8	10-10-86	152
WM:N-050	355748	0864551	785.9	07-04-86	45.0
WM:N-050A	355748	0864551	786.8	10-08-86	162
WM:N-051	355745	0864601	754.1	07-05-86	25.0
WM:N-051A	355745	0864601	754.8	10-08-86	137
WM:N-052	355715	0864621	791.8	07-07-86	35.0
WM:N-052A	355715	0864621	792.9	10-06-86	132
WM:N-053	355654	0864550	795.8	07-08-86	55.0
:N-053A	355654	0864550	798.4	09-24-86	203
:N-054	355710	0864541	759.8	07-10-86	30.0
WM:N-054A	355710	0864541	760.3	10-13-86	139
WM:N-055	355714	0864545	757.8	07-11-86	30.0
WM:N-055A	355714	0864545	758.6	10-13-86	177
WM:N-056	355729	0864618	775	01-09-87	45.0
WM:N-056A	355729	0864618	775	01-12-87	175
WM:N-057	355713	0864552	795	01-07-87	57.0
WM:N-057A	355713	0864552	795	01-08-87	204
WM:N-058	355711	0864631	760	01-08-87	35.0
WM:N-058A	355711	0864631	760	01-09-87	165

LOCAL WELL NUMBER	DEPTH OF WELL (FEET)	BOTTOM OF CASING (FEET)	WATER-LEVEL DATE	WATER LEVEL (FEET)
WM:N-020	350	21.0	--	--
WM:N-022	158	20.0	--	--
WM:N-023	1050	20.0	--	--
WM:N-024	240	21.0	--	--
WM:N-033	150	--	--	--
WM:N-038	175	--	--	--
WM:N-039	220	20.0	--	--
WM:N-040	350	--	--	--
WM:N-041	45.0	10.0	02-05-87	10.05
WM:N-041A	225	62.0	02-05-87	39.13
WM:N-042	35.0	10.7	02-05-87	16.06
WM:N-042A	193	34.0	02-05-87	15.76
WM:N-043	28.0	5.00	02-05-87	25.53
WM:N-043A	102	15.0	02-05-87	9.27
WM:N-044	34.1	5.00	02-05-87	10.06
WM:N-044A	102	20.0	02-05-87	9.57
WM:N-045	49.0	--	02-05-87	30.94
WM:N-045A	167	59.0	02-05-87	71.46
WM:N-046	30.0	4.50	02-05-87	4.98
WM:N-046A	135	15.0	02-05-87	29.57
WM:N-047	20.0	3.10	02-05-87	5.92
WM:N-047A	162	17.0	02-05-87	35.83
WM:N-048	45.0	6.00	--	--
WM:N-048A	152	41.0	02-05-87	71.81
WM:N-050	45.0	10.0	02-05-87	11.70
WM:N-050A	162	55.0	02-05-87	80.82
WM:N-051	25.0	8.70	02-05-87	11.63
WM:N-051A	137	34.0	02-05-87	36.46
WM:N-052	35.0	19.5	02-05-87	19.50
WM:N-052A	132	33.0	02-05-87	57.94
WM:N-053	55.0	10.0	02-05-87	35.09
WM:N-053A	203	41.0	02-05-87	63.79
WM:N-054	30.0	4.50	02-05-87	2.69
WM:N-054A	139	32.0	02-05-87	17.85
WM:N-055	30.0	5.80	02-05-87	14.32
WM:N-055A	177	26.0	02-05-87	18.03
WM:N-056	775	20.0	02-05-87	22.54
WM:N-056A	775	67.0	02-05-87	113.29
WM:N-057	795	9.0	02-05-87	--
WM:N-057A	795	57.0	02-05-87	50.74
WM:N-058	760	12.5	02-05-87	16.51
WM:N-058A	760	35.0	02-05-87	16.97

WM:N-020 thru 040 are domestic wells. No W/L Data obtained

W/L referenced to depth below land surface.

WM:N-057 is a flowing well w/ head > 10' above land surface.

TABLE 1

CONSTRUCTION & STATUS OF DOMESTIC WELLS

WELL OWNER	DATE COMPLETED	CASING DIAM. (IN)	DEPTH OF CASING (FT)	TOTAL DEPTH (FT)	OPEN INTERVAL FORMATION	PRINCIPLE WATER BEARING ZONE (DEPTH FT)	STATUS	DRILLER
Allen				68-80			Residential	
Beyer	04/05/69	7	20	200	B,H,C	195	Residential	
Boswell	08/14/85	6.25	20	1050	H, ,L,R,P,M,K	1020	Residential	Henry Drilling Co.
Denny	10/18/84	6.25	21	350	H,C,L	277	Residential	Henry Drilling Co.
Fischer	06/27/84	6.25	21	240	H,C,L	70,110	Residential	Henry Drilling Co.
Fletcher (1)				200	H,C,L	115-117	Residential	Henry Drilling Co.
Fletcher (2)				198	H,C,L	23, 115-116	Residential	Henry Drilling Co.
Foster (1)	08/08/85	6.25	20	260	H,C,L	146	Heat Pump	Henry Drilling Co.
Foster (2)	05/22/84	6.25	21	450	H,C,L.R	230	Residential	Henry Drilling Co.
Gore	06/04/70	6	20	75	H	65	Residential	
Holt		6	25	36	B	36	Residential	
Hall	03/03/86	6.25	24	400	H,C,L	80	Residential	Henry Drilling Co.
Howe				220	H,C,L	130	Residential	
Johnson	12/30/72	6	20	198	H,C	184	Residential	
Levine (1)	08/17/74	6	22	1235	H,C,L,R,P,M,K	1170	Residential	
Levine (2)				2200	H,C,L,R,P,M,K			
Myatt				73	H	18	Residential	
Legieza						28	Residential	
Mallory				350	H,C,L,R	112	Non-Potable	
Pewitt	09/16/81	6.25	21	105	H,C	105	Residential	Herman Clark Water Wells
Sullivan						28	Residential	
Wilson	02/28/84	6.25	21	260	B,H,C	160	Residential	Henry Drilling Co.

B = Bigby-Cannon Formation
H = Hermitage Formation
C = Carters Formation
L - Lebanon Formation
R = Ridley Formation
P = Pierce Formation
M = Murfreesboro Formation
K = Knox Group

Information Provided by TDHE, Division of Ground Water Protection.

REF.8

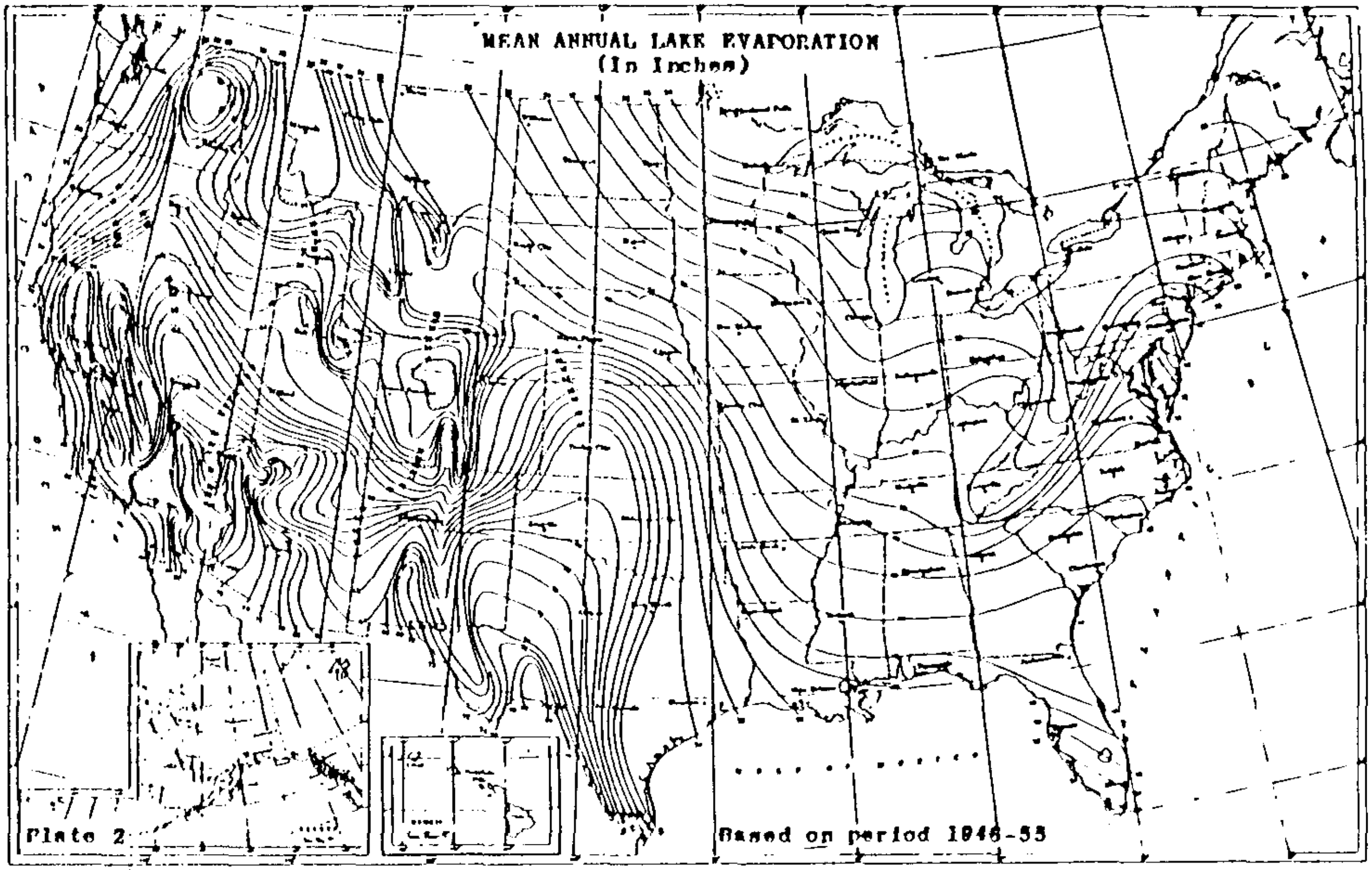
Uncontrolled Hazardous Waste Site Ranking System

A Users Manual
(HW-10)

Originally Published in
the July 16, 1982, *Federal Register*

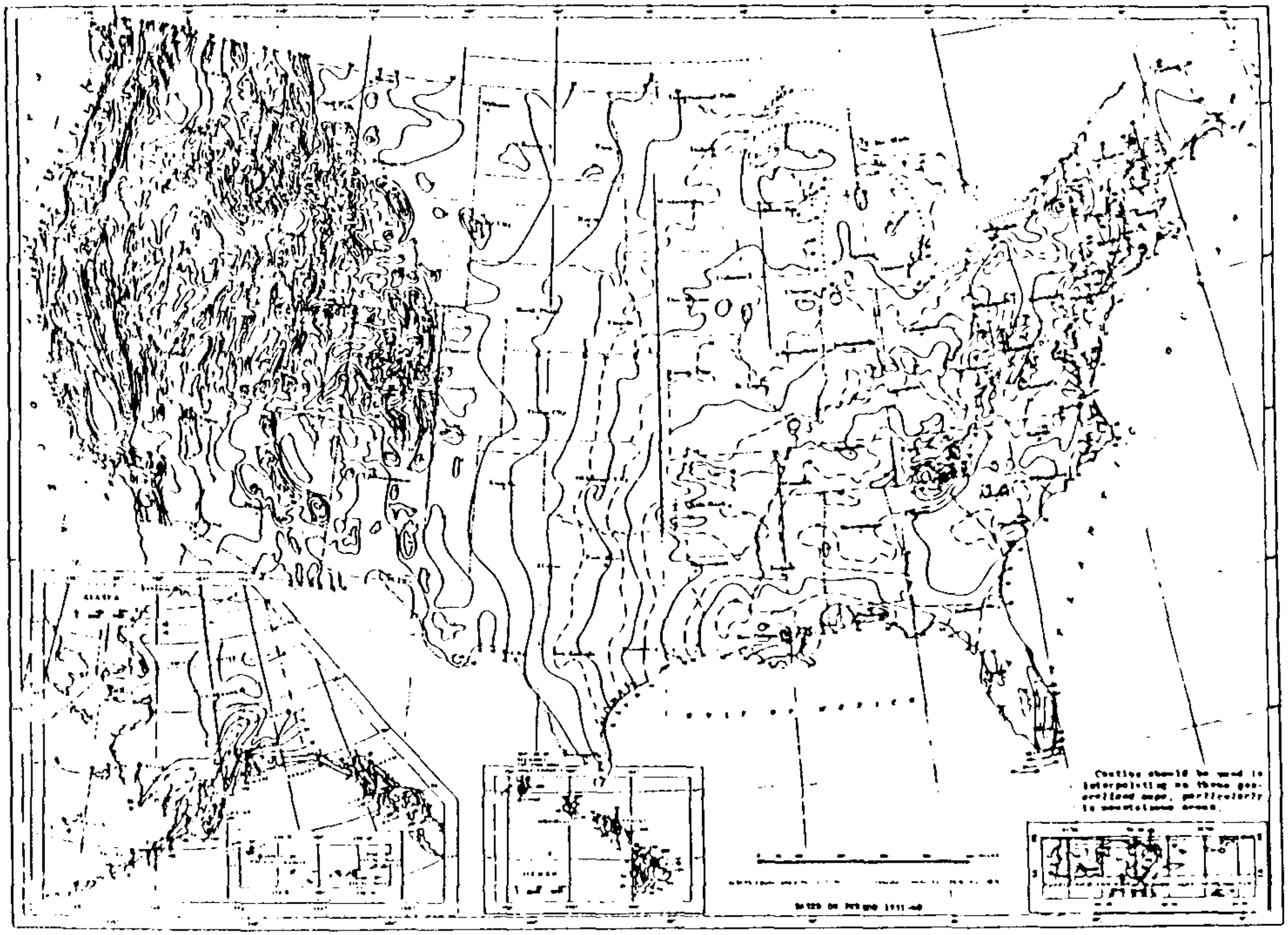
United States
Environmental Protection
Agency

1984



Source: Climatic Atlas of the United States, U.S. Department of Commerce, National Climatic Center, Ashville, N.C., 1979.

FIGURE 4
MEAN ANNUAL LAKE EVAPORATION
(IN INCHES)



Source: Climatic Atlas of the United States, U.S. Department of Commerce, National Climatic Center, Asheville, N.C., 1979.

FIGURE 5
NORMAL ANNUAL TOTAL PRECIPITATION (INCHES)

TABLE 2

PERMEABILITY OF GEOLOGIC MATERIALS*

look at least permeable layer

Type of Material	Approximate Range of Hydraulic Conductivity	Assigned Value
Clay, compact till, shale; unfractured metamorphic and igneous rocks	$<10^{-7}$ cm/sec	0 (impermeable)
Silt, loess, silty clays, silty loams, clay loams; less permeable limestone, dolomites, and sandstone; moderately permeable till	$10^{-5} - 10^{-7}$ cm/sec	1
Fine sand and silty sand; sandy loams; loamy sands; moderately permeable limestone, dolomites, and sandstone (no karst); moderately fractured igneous and metamorphic rocks, some coarse till	$10^{-3} - 10^{-5}$ cm/sec	2
Gravel, sand; highly fractured igneous and metamorphic rocks; permeable basalt and lavas; karst limestone and dolomite	$>10^{-3}$ cm/sec	3

*Derived from:

Davis, S. N., Porosity and Permeability of Natural Materials in Flow-Through Porous Media, R.J.M. DeWest ed., Academic Press, New York, 1969

Freeze, R.A. and J.A. Cherry, Groundwater, Prentice-Hall, Inc., New York, 1979

substance used in rating waste characteristics. Where the total inventory of substances in a facility is known, only those present in amounts greater than the reportable quantity (see CERCLA Section 102 for definition) may be evaluated.

Toxicity and Persistence have been combined in the matrix below because of their important relationship. To determine the overall value for this combined factor, evaluate each factor individually as discussed below. Match the individual values assigned with the values in the matrix for the combined rating factor. Evaluate several of the most hazardous substances at the facility independently and enter only the highest score in the matrix on the work sheet.

	Value for Persistence			
Value for Toxicity	0	1	2	3
0	0	0	0	0
1	3	6	9	12
2	6	9	12	15
3	9	12	15	18

Persistence of each hazardous substance is evaluated on its biodegradability as follows:

Substance	Assigned Value
Easily biodegradable compounds	0
Straight chain hydrocarbons	1
Substituted and other ring compounds	2
Metals, polycyclic compounds and halogenated hydrocarbons	3

more specific information is given in Tables 4 and 5.

Toxicity of each hazardous substance being evaluated is given a value using the rating scheme of Sax (Table 6) or the National Fire Protection Association (NFPA) (Table 7) and the following guidance:

5th ed. Toxicity	Assigned Value
none Sax level 0 or NFPA level 0	0
low Sax level 1 or NFPA level 1	1
moderate Sax level 2 or NFPA level 2	2
high Sax level 3 or NFPA level 3 or 4	3

Sax is preferred 5th Edition

Table 4 presents values for some common compounds.

Hazardous waste quantity includes all hazardous substances at a facility (as received) except that with a containment value of 0. NOT DEPENDENT UPON CONCENTRATION - dilution is not the solution to pollution. Do not include amounts of contaminated soil or water; in such cases, the amount of contaminating hazardous substance may be estimated.

On occasion, it may be necessary to convert data to a common unit to combine them. In such cases, 1 ton = 1 cubic yard = 4 drums and for the purposes of converting bulk storage, 1 drum = 50 gallons. Assign a value as follows:

Tons/Cubic Yards	No. of Drums	Assigned Value
0	0	0
1-10	1-40	1
11-62	41-250	2
63-125	251-500	3
126-250	501-1000	4
251-625	1001-2500	5
626-1250	2501-5000	6
1251-2500	5001-10,000	7
>2500	>10,000	8

TABLE 4

WASTE CHARACTERISTICS VALUES FOR SOME COMMON CHEMICALS

CHEMICAL/COMPOUND	Toxicity[1]	Persistence[2]	Ignitability[3]	Reactivity[3]
Acetaldehyde	3	0	3	2
Acetic Acid	3	0	2	1
Acetone	2	0	3	0
Aldrin	3	3	1	0
Ammonia, Anhydrous	3	0	1	0
Aniline	3	1	2	0
Benzene	3	1	3	0
Carbon Tetrachloride	3	3	0	0
Chlordane	3	3	0*	0*
Chlorobenzene	2	2	3	0
Chloroform	3	3	0	0
Cresol-O	3	1	2	0
Cresol-M&P	3	1	1	0
Cyclohexane	2	2	3	0
Endrin	3	3	1	0
Ethyl Benzene	2	1	3	0
Formaldehyde	3	0	2	0
Formic Acid	3	0	2	0
Hydrochloric Acid	3	0	0	0
Isopropyl Ether	3	1	3	1
Lindane	3	3	1	0
Methane	1	1	3	0
Methyl Ethyl Ketone	2	0	3	0
Methyl Parathion in Xylene Solution	3	0Δ	3	2
Naphthalene	2	1	2	0
Nitric Acid	3	0	0	0
Parathion	3	0Δ	1	2
PCB	3	3	0Δ	0Δ
Petroleum, Kerosene (Fuel Oil No. 1)	3	1	2	0
Phenol	3	1	2	0
Sulfuric Acid	3	0	0	2
Toluene	2	1	3	0
Trichlorobenzene	2	3	1	0
α-Trichloroethane	2	2	1	0
Xylene	2	1	3	0

[1] Sax, N. I., Dangerous Properties of Industrial Materials, Van Nostrand Reinhold Co., New York, 4th ed., 1975. The highest rating listed under each chemical is used.

[2] JRB Associates, Inc., Methodology for Rating the Hazard Potential of Waste Disposal Sites, May 5, 1980.

[3] National Fire Protection Association, National Fire Codes, Vol. 13, No. 49, 1977.

* Professional judgment based on information contained in the U.S. Coast Guard CHRIS Hazardous Chemical Data, 1978.

Δ Professional judgment based on existing literature.

TABLE 5

PERSISTENCE (BIODEGRADABILITY) OF SOME ORGANIC COMPOUNDS*

VALUE = 3 HIGHLY PERSISTENT COMPOUNDS

aldrin	heptachlor
benzopyrene	heptachlor epoxide
benzothiazole	1,2,3,4,5,7,7-heptachloronorbornene
benzothiophene	hexachlorobenzene
benzyl butyl phthalate	hexachloro-1,3-butadiene
bromochlorobenzene	hexachlorocyclohexane
bromoform butanal	hexachloroethane
bromophenyl phenyl ether	methyl benzothiazole
chlordane	pentachlorobiphenyl
chlorohydroxy benzophenone	pentachlorophenol
bis-chloroisopropyl ether	1,1,3,3-tetrachloroacetone
m-chloronitrobenzene	tetrachlorobiphenyl
DDE	thiomethylbenzothiazole
DDT	trichlorobenzene
dibromobenzene	trichlorobiphenyl
dibutyl phthalate	trichlorofluoromethane
1, 4-dichlorobenzene	2,4,6-trichlorophenol
dichlorodifluoroethane	triphenyl phosphate
dieldrin	bromodichloromethane
diethyl phthalate	bromoform
di(2-ethylhexyl)phthalate	carbon tetrachloride
dihexyl phthalate	chloroform
di-isobutyl phthalate	chlorodibromomethane
dimethyl phthalate	dibromodichloroethane
4,6-dinitro-2 aminophenol	tetrachloroethane
dipropyl phthalate	1,1,2-trichloroethane
endrin	

VALUE = 1 SOMEWHAT PERSISTENT COMPOUNDS

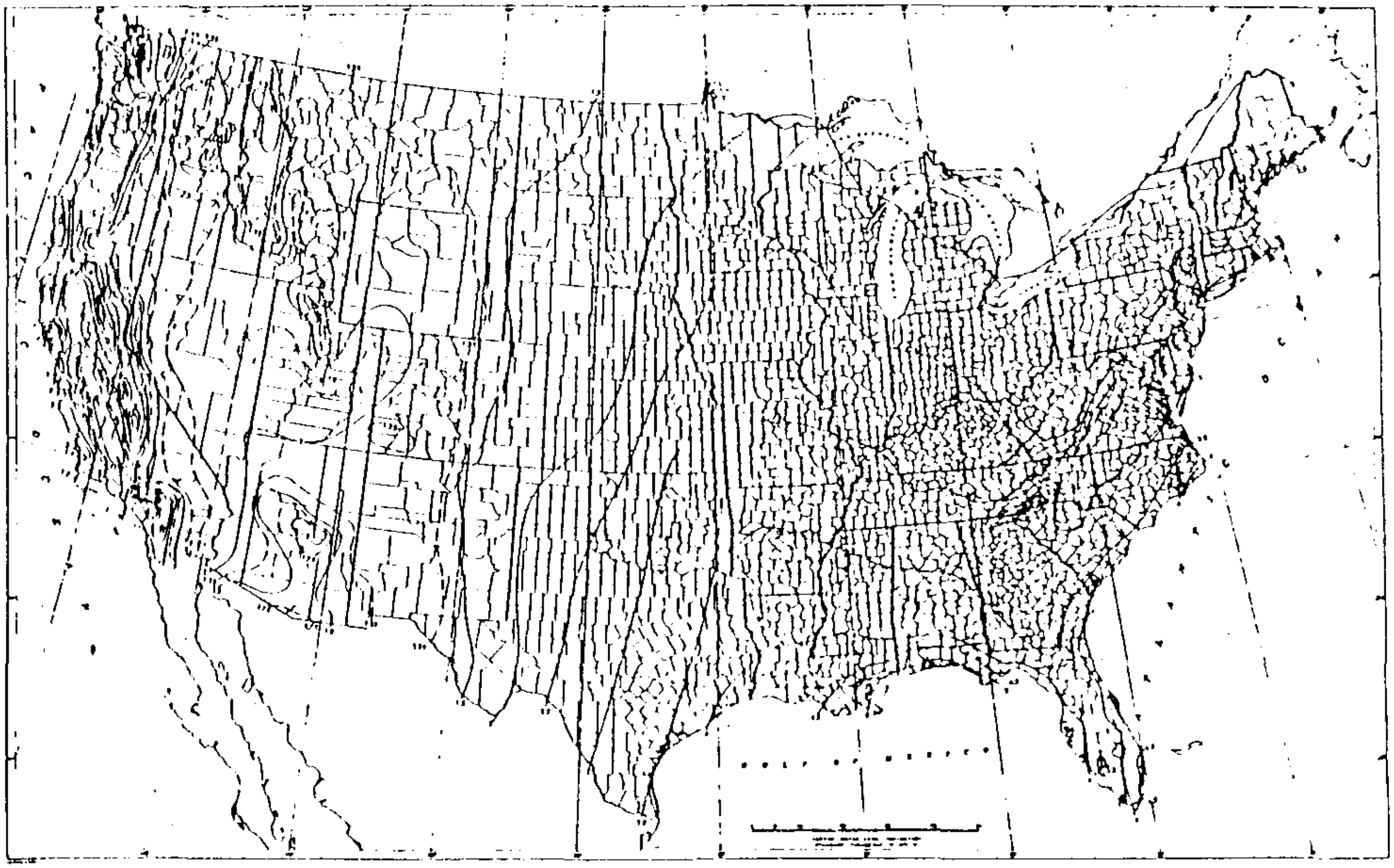
acetylene dichloride	limonene
behenic acid, methyl ester	methyl ester of lignoceric acid
benzene	methane
benzene sulfonic acid	2-methyl-5-ethyl-pyridine
butyl benzene	methyl naphthalene
butyl bromide	methyl palmitate
e-caprolactam	methyl phenyl carbinol
carbon-disulfide	methyl stearate
o-cresol	naphthalene
decane	nonane
1,2-dichloroethane	octane
1,2-dimethoxy benzene	octyl chloride
1,3-dimethyl naphthalene	pentane
1,4-dimethyl phenol	phenyl benzoate
dioctyl adipate	phthalic anhydride
n-dodecane	propylbenzene
ethyl benzene	1-terpineol
2-ethyl-n-hexane	toluene
o-ethyltoluene	vinyl benzene
isodecane	xylene
isoprophyl benzene	

VALUE = 2 PERSISTENT COMPOUNDS

acenaphthylene	cis-2-ethyl-4-methyl-1,3-dioxolane
atrazine	trans-2-ethyl-4-methyl-1,3-dioxolane
(diethyl) atrazine	guaiacol
barbital	2-hydroxyadiponitrile
borneol	isophorone
bromobenzene	indene
camphor	isoborneol
chlorobenzene	isopropenyl-4-isopropyl benzene
1,2-bis-chloroethoxy ethane	2-methoxy biphenyl
b-chloroethyl methyl ether	methyl biphenyl
chloromethyl ether	methyl chloride
chloromethyl ethyl ether	methylindene
3-chloropyridine	methylene chloride
di-t-butyl-p-benzoquinone	nitroanisole
dichloroethyl ether	nitrobenzene
dihydrocarvone	1,1,2-trichloroethylene
dimethyl sulfoxide	trimethyl-trioxo-hexahydro-triazine isomer
2,6-dinitrotoluene	

VALUE = 0 NONPERSISTENT COMPOUNDS

acetaldehyde	methyl benzoate
acetic acid	3-methyl butanol
acetone	methyl ethyl ketone
acetophenone	2-methylpropanol
benzoic acid	octadecane
di-isobutyl carbinol	pentadecane
docosane	pentanol
eicosane	propanol
ethanol	propylamine
ethylamine	tetradecane
hexadecane	n-tridecane
methanol	n-undecane



Source: Rainfall Frequency Atlas of the United States, Technical Paper No. 40, U.S. Department of Commerce, U.S. Government Printing Office, Washington, D.C., 1963.

FIGURE 8
1-YEAR 24-HOUR RAINFALL
(INCHES)

DRAFT
01-14-

Table I is the listing of EPA Hazard Ranking System (HRS) Waste Characteristics Values (Toxicity/Persistence matrix) used by the NPL quality assurance team. These rating factor values are based on the criteria specified in the HRS (toxicity rating assigned to each substance in Sax, Dangerous Properties of Industrial Chemicals, 4th, 5th and 6th editions). The listing shows the matrix values for ground water and surface water and the toxicity value for air. The values shown are "post multiplier" for use on the HRS worksheets. Changes to this list are made, albeit infrequently, as a result of response to public comment and changes in the reference material. Questions should be directed to the NPL quality assurance team via Mr. Steve Caldwell, EPA Headquarters, (202) 475-8103.

TABLE I

EPA Hazard Ranking System Waste Characteristics Values
(Toxicity/Persistence Matrix)

Chemical/Compound	Ground Water and Surface Water Pathway Values	Air Pathway Values
Acenapthene	9	3
Acetaldehyde	6	6
Acetic Acid	6	6
Acetone	6	6
2-Acetylaminoflourene	18	9
Aldrin	18	9
Ammonia	9	9
Aniline	12	9
Anthracene	15	9
Arsenic	18	9
Arsenic Acid	18	9
Arsenic Trioxide	18	9
Asbestos	15	9
Barium	18	9
Benzene	12	9
Benzidine	18	9
Benzoapyrene	18	9
Benzopyrene, NOS	18	9
Beryllium & Compounds NOS	18	9
Beryllium Dust, NOS	18	9
Bis (2-Chloroethyl) Ether	15	9
Bis (2-Ethylhexyl Phthalate	12	3
Bromodichloromethane	15	6
Bromoform	15	6
Bromomethane	15	9
Cadmium	18	9
Carbon Tetrachloride	18	9
Chlordane	18	9
Chlorobenzene	12	6
Chloroform	18	6
3-Chlorophenol	12	6
4-Chlorophenol	15	9
2-Chlorophenol	12	6
Chromium	18	9
Chromium, Hexavalent (Cr^{+6})	18	9

Table I (cont.)

Chemical/Compound	Ground Water and Surface Water Pathway Values	Air Pathway Values
Chromium, Trivalent (Cr^{+3})	15	6
Copper & Compounds, NOS	18	9
Creosote	15	6
Cresols	9	6
4-Cresol	12	9
Cupric chloride	18	9
Cyanides (soluble salts), NOS	12	9
Cyclohexane	12	6
DDE	18	9
DDT	18	9
Diaminotoluene	18	6
Dibromochloromethane	15	6
1, 2-Dibromo, 3-chloropropane	18	9
Di-N-Butyl-Phthalate	~~15~~ 12	6
1, 4-Dichlorobenzene	~~15~~ 18	6
Dichlorobenzene, NOS	18	6
1, 1-Dichloroethane	12	6
1, 2-Dichloroethane	12	9
1, 1-Dichloroethene	15	9
1, 2-cis-Dichloroethylene	12	3
1, 2-trans-Dichloroethylene	12	3
Dichloroethylene, NOS	12	3
2, 4-Dichlorophenol	18	6
2, 4-Dichlorophenoxyacetic Acid	18	9
Dicyclopentadiene	18	9
Dieldrin	18	9
2, 4-Dinitrotoluene	15	9
Dioxin	18	9
Endosulfan	18	9
Endrin	18	9
Ethylbenzene	9	6
Ethylene Dibromide	18	9
Ethylene Glycol	9	6
Ethyl Ether	15	3
Ethylmethacrylate	12	6

Table I (cont.)

Chemical/Compound	Ground Water and Surface Water Pathway Values	Air Pathway Values
Fluorine	18	9
Formaldehyde	9	9
Formic Acid	9	6
Heptachlor	18	9
Hexachlorobenzene	15	6
Hexachlorobutadiene	18	9
Hexachlorocyclohexane, NOS	18	9
Hexachlorocyclopentadiene	18	9
Hydrochloric Acid	9	6
Hydrogen Sulfide	18	9
Indene	12	6
~~Iron & Compounds, NOS~~	~~18~~	~~9~~
Isophorone	12	6
Isopropyl Ether	9	3
Kelthane	15	6
Kepone	18	9
Lead	18	9
Lindane	18	9
Magnesium & Compounds, NOS	15	6
* Manganese & Compounds, NOS	~~18~~ 12	9
Mercury	18	9
Mercury Chloride	18	9
Methoxychlor	15	6
4, 4-Methylene-Bis-(2-Chloroaniline)	18	9
Methylene Chloride	12	6
Methyl Ethyl Ketone	6	6
Methyl Isobutyl Ketone	12	6
4-Methyl-2-Nitroaniline	12	9
Methyl Parathion	9	9
2-Methylpyridine	12	6
Mirex	18	9

* Subject to EPA HQ approval

NOTE: Iron is not a CERCLA listed hazardous wa[illegible]

Table I (cont.)

Chemical/Compound	Ground Water and Surface Water Pathway Values	Air Pathway Values
Naphthalene	9	6
* Nickel & Compounds, NOS	~~18~~ 12	9
Nitric Acid	9	9
Nitroaniline, NOS	18	9
Nitrogen Compounds, NOS	12	0
Nitroguanidine	12	9
Nitrophenol, NOS	15	9
m-Nitrophenol	15	
o-Nitrophenol	12	
p-Nitrophenol	15	
Nitrosodiphenylamine	12	6
Parathion	9	9
Pentachlorophenol (PCP)	18	9
Pesticides, NOS	18	9
Phenanthrene	15	9
Phenol	12	9
Phosgene	9	9
Polybrominated Biphenyl (PBB), NOS	18	9
Polychlorinated Biphenyls (PCB), NOS	18	9
Potassium Chromate	18	9
Radium & Compounds, NOS	18	9
Radon & Compounds, NOS	15	9
RDX (Cyclonite)	15	
2, 4-D, Salts & Esters	18	9
* Selenium	~~15~~ 12	9
Sevin (Carbaryl)	18	9
Sodium Cyanide	12	9
Styrene	9	6
Sulfate	9	0
Sulfuric Acid	9	9
2, 4, 5-T	18	9
1, 1, 2, 2-Tetrachloroethane	18	9
Tetrachloroethane, NOS	18	9
1, 1, 2, 2-Tetrachloroethene	12	6

* Subject to EPA HQ approval

Table I (cont.)

Chemical/Compound	Ground Water and Surface Water Pathway Values	Air Pathway Values
Tetraethyl Lead	18	9
Tetrahydrofuran	15	6
Thorium & Compounds, NOS	18	9
Toluene	9	6
TNT	12	
Toxaphene	18	9
Tribromomethane	18	9
1, 2, 4-Trichlorobenzene	15	6
1, 3, 5-Trichlorobenzene	15	6
1, 1, 1-Trichloroethane	12	6
1, 1, 2-Trichloroethane	15	6
Trichloroethane, NOS	15	6
Trichloroethene	12	6
1, 1, 1-Trichloropropane	12	6
1, 1, 2-Trichloropropane	12	6
1, 2, 2-Trichloropropane	12	6
1, 2, 3-Trichloropropane	15	9
Uranium & Compounds, NOS	18	9
Varsol	12	6
Vinyl Chloride	15	9
Xylene	9	6
* Zinc & Compounds, NOS	~~18~~ 12	9
Zinc Cyanide	18	9

* Subject to EPA HQ approval

REF. 9

SOIL SURVEY

Williamson County
Tennessee

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
In cooperation with
TENNESSEE AGRICULTURAL EXPERIMENT STATION

Series 1961, No. 5

Issued August 1964

easy to work and are suited to all commonly grown crops and pasture.

Stiversville silt loam, 5 to 12 percent slopes, eroded (StC2).—This well-drained soil is on the uplands of the outer Central Basin. It has formed from phosphatic sandy limestone interbedded with shale. Small fragments of soft, sandy limestone are generally scattered throughout the soil. The depth to bedrock ranges from about 2 to 5 feet.

Representative profile:

- 0 to 8 inches, dark-brown, very friable silt loam with granular structure.
- 8 to 20 inches, reddish-brown or yellowish-brown, friable silty clay loam with blocky structure.
- 20 to 40 inches, dark-brown or reddish-brown, friable silty clay loam or clay loam with blocky structure; common fragments of sandy limestone increase in size and amount with increasing depth.

This soil is medium to high in phosphorus, is medium acid to strongly acid, and is moderate in available moisture capacity. Permeability is moderately rapid to rapid. The soil has a deep root zone and generally is in good tilth.

Nearly all areas of this soil have been cleared, but a considerable acreage is now idle. The soil is easy to work and is suited to many kinds of crops and pasture. Crops grown on it respond to good management, especially to additions of lime. The soil can be cultivated every 3 or 4 years if it is well managed and special practices are used to control water. (Capability unit IIIe–1)

Stiversville silt loam, 2 to 5 percent slopes, eroded (StB2).—This deep, well-drained soil is on gently sloping uplands in the eastern half of the county. It has formed from interbedded, phosphatic, sandy limestone and shale and contains highly weathered, sandy fragments in the lower subsoil. The surface layer is dark-brown silt loam, about 8 inches thick. The subsoil is yellowish-brown or reddish-brown silty clay loam or clay loam. In places small fragments of weathered siltstone or sandy limestone are on the surface. A few patches of this soil are severely eroded and have a plow layer of clay loam. Bedrock is at a depth of 2½ to 5 feet.

The soil is medium to high in phosphorus, is medium acid to strongly acid, and is moderate to moderately high in available moisture capacity. It is moderately rapid in permeability.

Many kinds of crops and pasture are suited to this soil. It is easy to work and to conserve and can be used moderately intensively. (Capability unit IIe–1)

Stiversville silt loam, 12 to 20 percent slopes, eroded (StD2).—This phosphatic soil is on short slopes of rolling hills. The surface layer of brown or dark-brown silt loam is about 4 to 6 inches thick and is underlain by a subsoil of yellowish-brown or reddish-brown silty clay loam or clay loam. In most places a few fragments of weathered siltstone or sandy limestone are on the surface. These sandy fragments are more common in the lower subsoil. Bedrock is generally at a depth of 2½ to 5 feet.

The soil is medium to high in phosphorus and is medium acid to strongly acid. It has a moderate to moderately low available moisture capacity. Permeability is moderately rapid to rapid.

Nearly all of this soil has been cleared and cultivated. Most of it is now used for pasture, but a considerable acreage is used for crops. Although the soil is suited to all common crops, it is too sloping for frequent cultivation. Plants respond especially well if lime is added to the soil. (Capability unit IVe–1)

Stiversville clay loam, 5 to 12 percent slopes, severely eroded (SrC3).—This soil has a surface layer of brown or yellowish-brown clay loam, 3 to 5 inches thick. Most of this layer is yellowish-brown or reddish-brown silty clay loam or clay loam from the subsoil. In most places fragments of weathered siltstone or sandy limestone are on the surface. Many shallow gullies or a few deep ones are common, and in places there are a few outcrops of bedrock. The average depth to bedrock, however, is between 2 and 4 feet.

This soil is medium to high in phosphorus and is medium acid to strongly acid. Although not especially droughty, the soil is generally in poor tilth. Because of the fine-textured surface layer and the strong slopes, further erosion is likely and frequent cultivation is not practical. With careful management that includes intensive conservation practices, the soil can be cultivated every 4 or 5 years. It is fairly well suited to the commonly grown crops and pasture. Crops respond to good management, especially to additions of lime and nitrogen. (Capability unit IVe–1)

Stiversville clay loam, 12 to 20 percent slopes, severely eroded (SrD3).—This severely eroded, phosphatic soil is on strongly sloping uplands of the outer Central Basin. The surface layer is brown or yellowish-brown clay loam. This layer is 3 to 5 inches thick and consists mostly of yellowish-brown or reddish-brown silty clay loam or clay loam from the subsoil. Many shallow gullies or a few deep ones are common. In most places fragments of weathered siltstone or sandy limestone, ½ to 3 inches across, are on the surface. These sandy fragments generally are throughout the soil and increase in size and amount with increasing depth. Bedrock of phosphatic sandy limestone is at a depth of 2 to 4 feet.

The soil has lost much of its natural fertility and most of its organic matter. It has low available moisture capacity.

All of this soil has been cleared and cultivated. About 25 percent of the acreage is still in crops, 50 percent is in pasture, and 25 percent is idle or is in sparse stands of trees. Because of the fine-textured surface layer and steep slopes, runoff is rapid and the hazard of further erosion is great. Therefore, the soil is best suited to permanent pasture or hay. (Capability unit VIe–1)

Sulphura Series

In the Sulphura series are steep soils on high hills and knobs. These soils have developed in residuum of shale, which in most places is mantled by 2 to 14 inches of cherty creep that drifted down from higher soils.

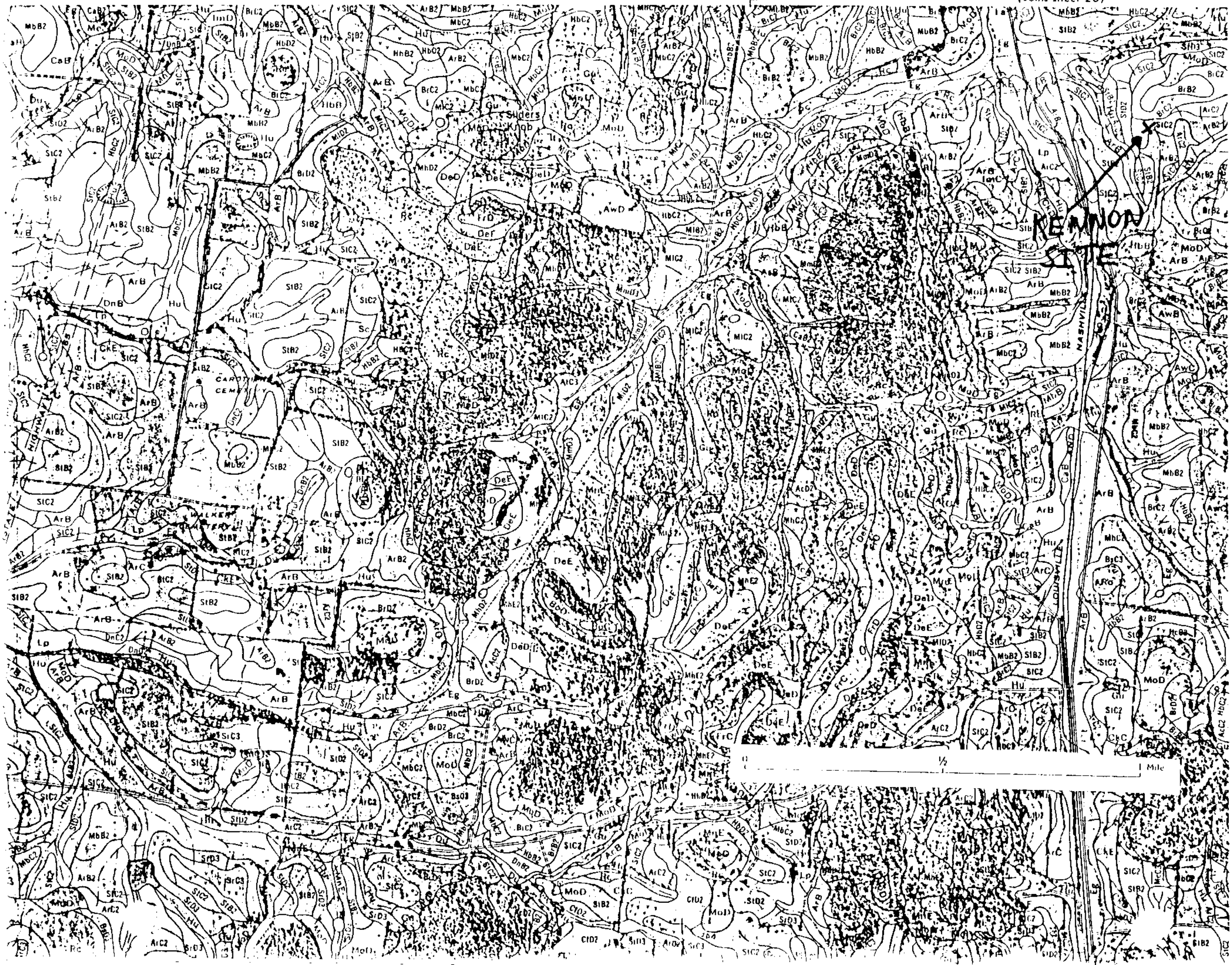
Sulphura soils have a surface layer of dark grayish-brown cherty silt loam about 6 inches thick, and a subsoil of dark-brown shaly silt loam or shaly silty clay loam. Shale bedrock generally is at a depth of 18 to 24 inches, but it crops out on the steeper slopes. Slopes range from 12 to 50 percent but are generally greater than 20 percent.

These soils are medium acid to strongly acid and low in available moisture capacity.

The Sulphura soils are between the Bodine soils and Dellrose soils on hillsides. They are below the Bodine

(Joins sheet 20)

29



N

(Joins sheet 30)

REF. 10

FEB 21 1986

City of Brentwood

P.O. BOX 788, 116 WILSON PIKE
BRENTWOOD, TENNESSEE 37027
TELEPHONE (615) ~~373-3011~~ 371-0060

T. MACK BLACKBURN
MAYOR
PHILLIP HARDEMAN
VICE MAYOR
FRANK W. CLIFTON, JR.
CITY MANAGER

COMMISSIONERS
T. MACK BLACKBURN
PHILLIP HARDEMAN
HAROLD J. McMURTRY
BRIAN J. SWEENEY
RICHARD L. VAUGHN

February 19, 1986

Mr. Donald Shackleford
Tennessee Department of Health and Environment
701 Broadway, 4th floor Customs House
Nashville, TN 37219-5403

Dear Mr. Shackleford:

Based on our previous conversations and our meeting with Dr. Bruner and Mayor Blackburn, the following cost estimates are provided:

Alternative 1

6" Ductile Iron Pipe from Alamo Drive to the intersection of Split Log Road and Wilson Pike and east on Split Log Road to the existing city limits and south on Wilson Pike to the existing city limits.

17,000 L.F. of 6" DI Pipe at $14/LF	$ 238,000
37 6" Gate Valves at $400 each	14,800
24 Fire Hydrants at $1,100 each	26,400
Railroad Crossing (Tunnelled)	20,000
Pavement Repairs 300 LF at $12/LF	3,600
Crushed Stone 8,000 LF at $1/LF	8,000
Meters/Boxes 25 at $200 each	5,000
Service Lines 625 LF at $4/LF	2,500
Engineering (6%)	19,100
Inspection (4%)	12,700
Contingency (10%)	31,400
Total Estimated Cost	$ 382,000

Alternative 2

Instead of 6" Ductile Iron Pipe use Class 200 PVC Pipe at an estimated cost of $7/LF instead of $14/LF for Ductile Iron. All other factors remain the same, a savings of $119,000 is realized. Total revised project cost will be $263,000.

Alternative 3

Replacing the proposed minimum 6" Ductile Iron Pipe with a 12" Ductile Iron Pipe to provide adequate water supply for future growth. A revised cost estimate is as follows:

16,000 L.F. of 12" Ductile Iron Pipe at $28/LF	$ 448,000
500 L.F. of 6" Ductile Iron Pipe at $14/LF	7,000
12" Gate Valves--13 at $900 each	11.700
6" Gate Valves--24 at $400 each	9,600
Fire Hydrants--24 at $1,100 each	26,400
Railroad Crossing (Tunnelled)	20,000
Pavement Repairs--300 L.F. at $12/LF	3,600
Crushed Stone--8,000 L.F. at $1/LF	8,000
Meters/Boxes--25 at $200 each	5,000
Service Lines 625 L.F. at $4/LF	2,500
Engineering (6%)	33,400
Inspection (4%)	22,300
Contingency (10%)	55,700
Total Estimated Cost	$ 668,000

Alternative 4

Instead of 12" Ductile Iron Pipe Use Class 200 PVC Pipe at an estimated cost of $14/LF instead of $28/LF for Ductile Iron. All other factors remain consistent, a savings of $227,500 is realized. Total revised project cost will be $440,500.

In addition to one of the above options the City will be required to bring a second feeder line into the new proposed line. This second feeder will come down Wilson Pike from Concord Road to the new connection off of Alamo Drive. The approximate length of this additional line is estimated to be 4,500 L.F. This second feeder line will cost additionally above alternatives 1-4 (depending on the option selected) as follows:

Mr. Donald Shackleford
February 19, 1986
Page three

- 6" Ductile Iron Pipe	$ 97,000
- 6" Class 200 PVC	64,800
- 12" Ductile Iron Pipe	180,000
- 12" Class 200 PVC	115,600

Summarizing

To effectively get a reliable source of public water to area in question would cost a minimum of $327,800 and under the most desirable conditions, using 12" PVC Class 200 Pipe, $556,500. These estimates would be subject to actual bids.

If Class 200 PVC Pipe is allowable under these conditions, I feel the City would want to install the 12" line as a minimum, understanding that the City would have to pick up the cost difference between the 12" and 6" pipe and the second feeder to the area in question.

Based on the above calculations, I feel a reasonable estimate of cost sharing on this project would be:

Local Sources	$ 293,100
State and/or Pollution Offenders	263,000
Total Estimated Cost	$ 556,100

Please recognize that these figures include no cost for right-of-way acquisition or condemnation expenses.

This information is being provided the Brentwood City Commission for their review and knowledge. We will await further contact from your office with regards to proceeding with any additional action.

Respectfully,

Frank W. Clifton, Jr.
City Manager

cc: Mayor and City Commission
City Attorney Robert H. Jennings, Jr.

FWC:NS

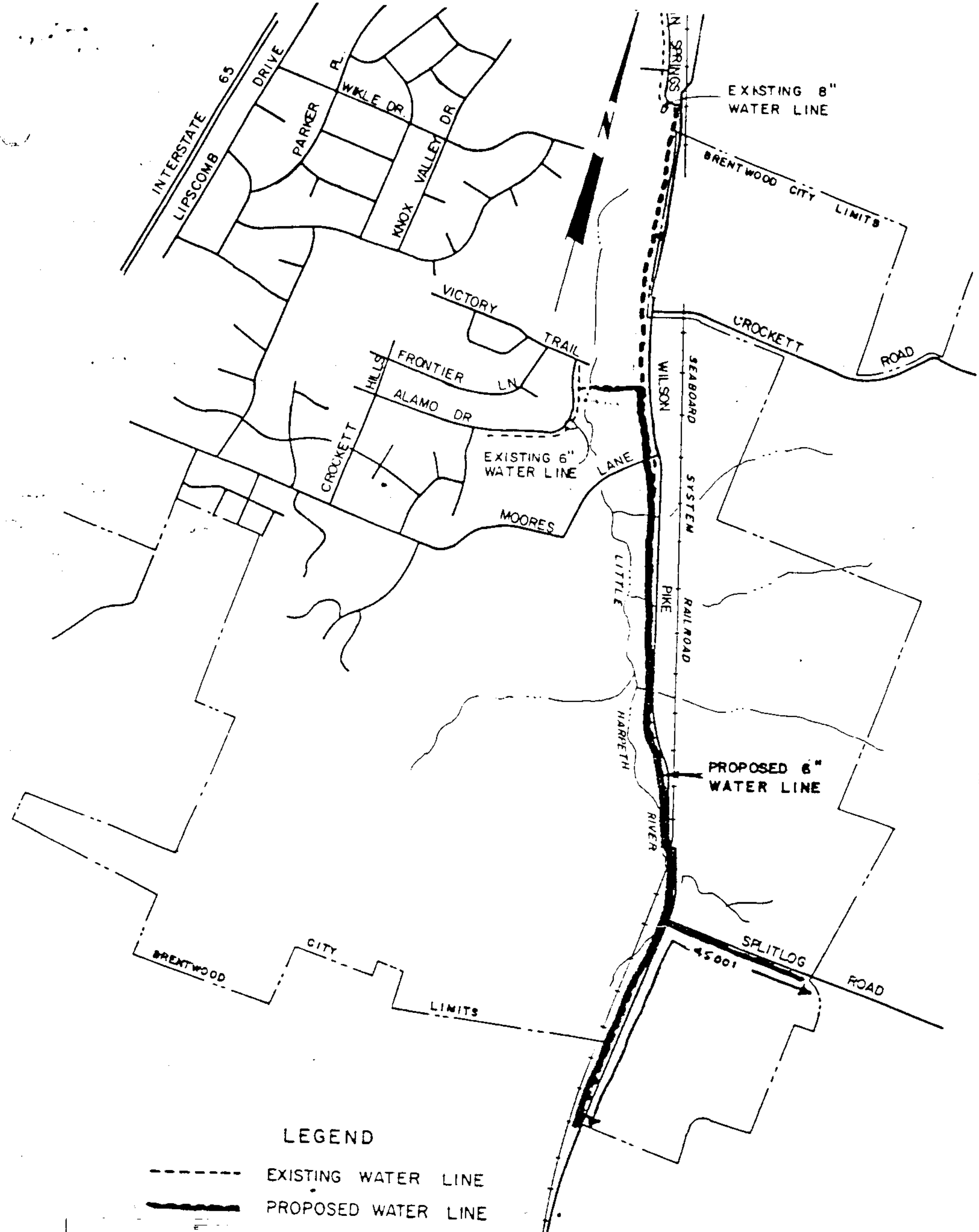

INTERSTATE 65
LIPSCOMB DRIVE
PARKER PL.
WIKLE DR.
KNOX VALLEY DR
EXISTING 8" WATER LINE
BRENTWOOD CITY LIMITS
VICTORY TRAIL
CROCKETT ROAD
FRONTIER LN
ALAMO DR
CROCKETT HILLS
WILSON PIKE
SEABOARD SYSTEM RAILROAD
EXISTING 6" WATER LINE
MOORES LANE
LITTLE HARPETH RIVER
PROPOSED 6" WATER LINE
SPLITLOG ROAD
45001
BRENTWOOD CITY LIMITS
LEGEND
EXISTING WATER LINE
PROPOSED WATER LINE

EXHIBIT I

REF. 11

GENESCO

JGP 8/1
ORJ 8/4
AUG 01 1986
CMP-8/...
File

Employee and Environmental Safety

Mr. Frank W. Clifton, Jr.
City Manager
City of Brentwood
P.O. Box 788
Brentwood, TN 37027

RE: SERVICE CONNECTIONS

July 28, 1986

Dear Frank:

As we discussed with you and with John Grissom, an estimate of the cost of each service connection prior to installation would probably be the best method of insuring we are in agreement of the costs involved.

To facilitate the cost estimates, we asked Bill Griggs of Barge, Waggoner, Sumner and Cannon, to meet with John Grissom, Manager of Water Service of the City of Brentwood, to estimate distances and size of service line needed, etc. Attached is his report.

Bill's basic assumption on sizes, etc. was to assume that your storage tank would be 50% full, a residual pressure of 20 psi would be maintained, and that 10 GPM would be adequate for each residence.

There are questions we have involving three service connections that we would like to ask either John Grissom or the contractor to clarify:

It would appear to be much more cost effective to combine the service lines to the three residences on the Sharp property, and to extend the service connection to Mr. Reese Smith's house back down the hill to connect to Woodrow Shaw's residence (Mr. Smith's tenant). If a common service line is not applicable, we would still prefer a common trench.

If you could have someone clarify this before we proceed further, it would expedite the cost estimating process.

As quickly as the cost estimates are submitted, we will have a prompt review, so we could proceed without undue delay.

Genesco Inc.
Genesco Park
Nashville TN 37202

615 367 8417

Thank you for your assistance.

Sincerely,

Ralph E. Mosely
Director
Employee and Environmental Safety

RM/bb

cc: Mr. John Grissom - City of Brentwood
Mr. Bill Griggs - Barge, Waggoner, Sumner & Cannon
Mr. Don Shackelford - Tennessee Dept. of Health & Environment

MILE RADIUS
Jim 3/3/87
Charles Powers - Superfund Field Coordinator

RECOMMENDED SERVICE LINE SIZES
BRENTWOOD WATER LINE
FILE 9835

Name	Address	Parcel	Elev.	Estimated Dist. from Road, Ft.	Service Line Size, In.	Available GPM[3]	Remarks
[redacted]	[redacted]	54-39.15	730	200	3/4	13	
[redacted]	[redacted]	54-39.14	720	400	3/4	10	
[redacted]	[redacted]	54-39.13	720	200	3/4	14	
[redacted]	[redacted]	54-39.11	725	175	3/4	14	
[redacted]	[redacted]	54-39.10	725	175	3/4	14	
[redacted]	[redacted]		730	150	3/4	15	
[redacted]	[redacted]		730	300	3/4	10	
[redacted]	[redacted]		750	600	1	14	1
[redacted]	[redacted]		750	600	1	14	
[redacted]	[redacted]	54-39.04	760	600	1	13	
[redacted]	[redacted]	54-39.05	770	600	1	12	
[redacted]	[redacted]	54-42.01	760	200	3/4	11	
[redacted]	[redacted]	54-42.02	760	500	1	15	
[redacted]	[redacted]	54-40	760	600	1	14	
[redacted]	[redacted]	54-40	820	2,000	2	25	
[redacted]	[redacted]	54-40	780	1,800	1-1/2	18	
[redacted]	[redacted]	61-5	830	1,500	2	25	

[1] John Grisson was unsure of exact location.
[3] Includes head loss through meter, minimal loss through 12" main, tank 50% full, and 20 psi residual pressure.

Name	Address	Parcel	Elev.	Estimated Dist. from Road, Ft.	Service Line Size, In.	Available GPM[3]	Remarks
[redacted]	[redacted]	61-5	830	1,700	2	23	
[redacted]	[redacted]	61-5	810	1,200	1-1/2	17	2
[redacted]	[redacted]		770	250	1	20	
[redacted]	[redacted]		780	250	1	19	
[redacted]	[redacted]		765	600	1	13	
[redacted]	[redacted]		760	200	3/4	11	
[redacted]	[redacted]		790	400	1	13	
[redacted]	[redacted]		785	400	1	14	
[redacted]	[redacted]		790	700	1	10	
[redacted]	[redacted]		800	150	3/4	10	
[redacted]	[redacted]		825	600	1-1/2	20	
[redacted]	[redacted]		765	500[4]	1	14	
[redacted]	[redacted]		790	400	1	13	
[redacted]	[redacted]		720	600	1	16	

Summary – 3/4" – 2,150 LF
– 1" – 7,600 LF
– 1-1/2" – 3,600 LF
– 2" – 5,200 LF

[2] Served from Split Log Road.
[3] Includes head loss through meter, minimal loss through 12" main, tank 50% full, and 20 psi residual pressure.
[4] No existing house, assumed distance.

REF. 12

FROM	TO	DATE

TENNESSEE DEPARTMENT OF HEALTH AND ENVIRONMENT

OFFICE CORRESPONDENCE

DATE: March 6, 1987

TO: SIU Files - Kennon Site (Genesco)

FROM: Thomas A. Moss, DSF TAM

SUBJECT: Details of Conversation - pertinent site information.

On March 6, 1987 at 7:30 a.m., Thomas A. Moss of the Superfund Division contacted Ronnie L. Bowers of the Superfund Division regarding the Kennon Site (Genesco) sample results, water use.

Details of conversation:

The first set of results at the Mallory Well and Fletcher Well are suspect. At the first sampling from the tap at the Mallory Well, it was not known that Mallory had used a rubber hose instead of PVC from the well to the tap. The second time, the well was bailed and diethyl phthalate did not show up.

Hackett Spring is the nearest drinking water source to the site. The Little Harpeth is very shallow except for small pools. Mr. Bowers has seen fish in the pools, but has never seen anyone fishing in the 1 1/2 years he has been involved with the site. Glass Creek is intermittent.

FROM	DATE

TO

REF. 13 + 14

OVERSIZED

DOCUMENT

REF. 15

TENNESSEE DEPARTMENT OF HEALTH AND ENVIRONMENT

OFFICE CORRESPONDENCE

FROM	TO	DATE

DATE: March 10, 1987

TO: SIU Files - Kennon Site (Genesco)

FROM: Thomas A. Moss, DSF TAM

SUBJECT: Details of Telecon - pertinent site information.

On March 10, 1987 at 7:40 a.m., Thomas A. Moss of the Superfund Division contacted Robin Bowie of the Williamson County Soil Conservation Service by telephone regarding surface and ground water use for irrigation in the area of the Genesco site.

Details of conversation:

Mr. Bowie is familiar with the area where the Genesco site is located. Mr. Bowie stated that to his knowledge, there is no irrigation by wells or streams within 3 miles of the site. Mr. Bowie is sure there is some fishing done by kids in the Little Harpeth River between Split Log Road and Concord Road.

TAM/ib

FROM	DATE

TO

PH-0001
SR 3/77

REF. 16

20385

TENNESSEE WILDLIFE RESOURCES AGENCY

ELLINGTON AGRICULTURAL CENTER
P. O. BOX 40747
NASHVILLE, TENNESSEE 37204

December 19, 1985

Mr. Gordon Caruthers
Solid Waste Management Division
Department of Health & Environment
701 Broadway
Nashville, TN 37219

Dear Gordon:

In response to your call of December 19, I am happy to enclose descriptions of critical wildlife habitat of Tennessee, as designated by the U.S. Fish and Wildlife Service.

Please advise if I can be of further assistance.

Sincerely,

TENNESSEE WILDLIFE RESOURCES AGENCY

Bob

Robert M. Hatcher, Coordinator
Nongame/Endangered Species

RMH/ch
enc.

Proposed Rules (Region 4)

(E = Endangered; T = Threatened; CH = Critical Habitat: S/A = Classified under similarity of appearance provision)

SPECIES	LOCATION	DETERMINATION	FEDERAL REGISTER
Trispot Darter (*Etheostoma trisella*)	Conasauga River, Coahulla Creek, TN, GA	E, CH	07/13/84
Prickly-ash (*Zanthoxylum thomasianum*)	PR, VI	E	02/11/85
Dismal Swamp Southeastern Shrew (*Sorex longirostris fisheri*)	VA and NC	T	07/16/85
Short's Goldenrod (*Solidago shortii*)	Robertson, Nicholas, Fleming Co., KY	E	10/11/84
Key Largo Cotton Mouse and Woodrat	N. Key Largo, FL	CH	02/09/84, 08/31/84, 11/21/84
Prickly Apple Cactus (*Cereus eriophorus* var. *fragrans*)	St. Lucie Co., FL	E	03/06/85
Longspurred Balm (*Dicerandra cornutissima*)	Marion Co., FL	E	
Scrub Balm (*Dicerandra frutescens*)	Highlands Co., FL	E	03/26/85
Canby's Dropwort (*Oxypolis canbyi*)	Burke, Lee, Sumter Co., GA; Scotland Co., NC; Bamberg, Colleton Co., SC; MD	E	03/28/85
Florida Golden Aster (*Chrysopsis floridana*)	Hillsborough and Pinellas Counties, FL	E	08/05/85
Pondberry (*Lindera melissifolia*)	AR: Clay Co. MS: Sharkey Co. MO: Ripley Co. NC: Bladen Co. SC: Berkeley Co. GA: Wheeler Co.	E	08/13/85

ENDANGERED AND THREATENED WILDLIFE AND PLANTS

JULY 20, 1984

50 CFR 17.11 and 17.12

Department of the Interior
U.S. Fish and Wildlife Service

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

Republication of the Lists of Endangered and Threatened Species

AGENCY: *Fish and Wildlife Service,* Interior.

ACTION: Final rule.

SUMMARY: The Service republishes the U.S. Lists of Endangered and Threatened Wildlife and Plants. The last complete republication was May 20, 1980 (45 FR 33768–33781). Minor changes, principally in names of the species, are incorporated in this republication.

DATES: This rule is effective on July 27, 1983.

ADDRESSES: Comments concerning this republication should be sent to the Associate Director—Federal Assistance, *Fish and Wildlife Service,* U.S. Department of the Interior, Washington, D.C. 20240.

FOR FURTHER INFORMATION CONTACT: Mr. John L. Spinks, Jr., Chief, Office of Endangered Species, U.S. Fish and Wildlife Service, Washington, D.C. 20240 (703/235-2771).

SUPPLEMENTARY INFORMATION:

Background

These lists contain the names of species officially listed as Endangered or Threatened under the Endangered Species Act of 1973, as amended (16 U.S.C. 1531, *et seq.*) through the date of this republication. The listing regulations promulgated under that Act are found at 50 CFR Part 424 and are under revision to conform to the Endangered Species Act Amendments of 1982 (Pub. L. 97-304, 96 Stat. 1411). The previous compilation of these lists appears in the 1982 edition of the Code of Federal Regulations for Title 50, which was actually issued in early 1983. That compilation was effective through October 1, 1982. This republication of §§ 17.11 and 17.12 incorporates all subsequent changes (i.e., additions, reclassifications, and deletions) published as Final Rules in the Federal Register.

In addition to those changes, the Service has made extensive revisions on some of the entries. Most of these changes reflect current nomenclature. The entries for the common and scientific names of many plants and animals are amended by adding synonyms, indicated by the use of (=). Synonyms aid law enforcement officials, importers, exporters, and many others who routinely use these names by identifying alternative names that may appear in documents and other references.

The species named in these lists were placed there either by the U.S. Fish and Wildlife Service, Department of the Interior, or jointly by that Service and the National Marine Fisheries Service, National Oceanic and Atmospheric Administration, Department of Commerce. References to "Services" in the text of §§ 17.11 and 17.12 refer to those two agencies. The Fish and Wildlife Service maintains the lists through republications and other administrative practices.

No entry to these lists has been added, deleted, or significantly altered by this republication. Such actions must be published as separate documents in the Federal Register.

Minor changes are made in §§ 17.11(d) and 17.12(d) to clarify that some of the data in these lists are provided for the information of the reader and may now be changed without public notice when the annual (October 1) compilation of Title 50 is being done. This procedure will annually save the government several thousand dollars in publication costs in the daily Federal Register by permitting such changes of a nonregulatory nature.

The Service finds for good cause that this document shall be effective upon publication and that notice and public comment are unnecessary. This action is merely a republication of existing, and previously published, requirements. By bringing earlier lists up to date, it will provide more timely guidance to the public. Readers are requested to advise the Service of any errors or omissions, particularly with regard to historic ranges and alternative names in these lists.

Authors

This document was compiled by the staff of the Office of Endangered Species, U.S. Fish and Wildlife Service, Washington, D.C. 20240 (703/235-1975).

List of Subjects in 50 CFR Part 17

Endangered and threatened species.

Dated: July 21, 1983.

J. Craig Potter,

Acting Assistant Secretary for Fish and Wildlife and Parks.

Regulations Promulgation

PART 17—[AMENDED]

Accordingly, the Service amends Part 17 of Title 50 of the Code of Federal Regulations as follows:

1. The authority citation for Part 17 reads as follows:

Authority: Pub. L. 93-205, 87 Stat. 884; Pub. L. 95-632, 92 Stat. 3751; Pub. L. 96-159, 93 Stat. 1241; and Pub. L. 97-304, 96 Stat. 1411 (16 U.S.C. 1531, *et seq.*).

2. Revise Subpart B of 50 CFR Part 17 to read as follows:

Subpart B—Lists

§ 17.11 Endangered and threatened wildlife.

(a) The list in this section contains the names of all species of wildlife which have been determined by the Services to be Endangered or Threatened. It also contains the names of species of wildlife treated as Endangered or Threatened because they are sufficiently similar in appearance to Endangered or Threatened species (see § 17.50 *et seq.*).

(b) The columns entitled "Common Name," "Scientific Name," and "Vertebrate Population Where Endangered or Threatened" define the species of wildlife within the meaning of the Act. Thus, differently classified geographic populations of the same vertebrate subspecies or species shall be identified by their differing geographic boundaries, even though the other two columns are identical. The term "Entire" means that all populations throughout the present range of a vertebrate species are listed. Although common names are included, they cannot be relied upon for identification of any specimen, since they may vary greatly in local usage. The Services shall use the most recently accepted scientific name. In cases in which confusion might arise, a synonym(s) will be provided in parentheses. The Services shall rely to the extent practicable on the *International Code of Zoological Nomenclature.*

(c) In the "Status" column the following symbols are used: "E" for Endangered, "T" for Threatened, and "E (or T) (S/A)" for similarity of appearance species.

(d) The other data in the list are nonregulatory in nature and are provided for the information of the reader. In the annual revision and compilation of this Title, the following information may be amended without public notice: the spelling of species' names, historical range, footnotes, references to certain other applicable portions of this Title, synonyms, and more current names. In any of these revised entries, neither the species, as defined in paragraph (b) of this section, nor its status may be changed without following the procedures of Part 424 of this Title.

(e) The "Historic Range" indicates the known general distribution of the species or subspecies as reported in the r nt scientific literature. The present d/bution may be greatly reduced from this historic range. This column does not imply any limitation on the application of the prohibitions in the Act or implementing rules. Such prohibitions apply to all individuals of the species, wherever found.

(f)(1) A footnote to the Federal Register publication(s) listing or reclassifying a species is indicated under the column "When Listed." Footnote numbers to §§ 17.11 and 17.12 are in the same numerical sequence, since plants and animals may be listed in the same Federal Register document. That document, at least since 1973, includes a statement indicating the basis for the listing, as well as the effective date(s) of said listing.

(2) The "Special Rules" and "Critical Habitat" columns provide a cross reference to other sections in Parts 17, 222, 226, or 227. The term "NA" (not applicable) appearing in either of these two columns indicates that there are no special rules and/or Critical Habitat for that particular species. However, all other appropriate rules in Parts 17, 217–227, and 402 still apply to that species. In addition, there may be other rules in this Title that relate to such wildlife, e.g., port-of-entry requirements. It is not intended that the references in the "Special Rules" column list all the regulations of the two Services which might apply to the species or to the regulations of other Federal agencies or State or local governments.

(g) The listing of a particular taxon includes all lower taxonomic units. For example, the genus *Hylobates* (gibbons) is listed as Endangered throughout its entire range (China, India, and SE Asia); consequently, all species, subspecies, and populations of that genus are considered listed as Endangered for the purposes of the Act. In 1978 (43 FR 6230–6233) the species *Haliaeetus leucocephalus* (bald eagle) was listed as Threatened in "USA (WA, OR, MN, WI, MI)" rather than its entire population; thus, all individuals of the bald eagle found in those five States are considered listed as Threatened for the purposes of the Act.

(h) The "List of Endangered and Threatened Wildlife" is provided below:

REF. 17

WATER QUALITY MANAGEMENT PLAN
FOR THE
LOWER CUMBERLAND RIVER BASIN

November, 1978

PRODUCED BY
TENNESSEE DEPARTMENT OF PUBLIC HEALTH
DIVISION OF WATER QUALITY CONTROL
309 CAPITOL TOWERS
NASHVILLE, TENNESSEE 37219

Authorization No. 0871 ; 150 copies printed. This document was printed at a cost of 3399.50 , or 22.66 each, to fulfill a requirement of EPA Grant No. P004193010 to the State of Tennessee and Section 208 of the Federal Water Pollution Control Act Amendments of 1972.

Printed by Enviro-Printers, Franklin, Tennessee

066

TABLE III - 2

Domestic Surface Water Supplies In The Lower Cumberland River Basin

Municipality or Water Company	Water Source	Intake Location: River Mile	Intake Location: Coordinates: Latitude	Intake Location: Coordinates: Longitude	Avera[illegible] Dai[illegible] Use ([illegible]
Woodbury	East Fork Stones River	44.3	35°49'36"	86°04'28"	0.3
Ashland City	Big Marrowbone Creek. Cumberland River	1.1 160.0	36°15'41"	87°03'33"	0.4[illegible]
Pleasant View Utility District	Sycamore Creek	-	36°19'36"	87°03'30"	0.3
River Road Utility District	Brush Creek Cumberland River	1.1 160.7	36°16'14"	87°03'07"	0.[illegible]
South Cheatham Utility District	Harpeth River	36.1	36°06'38"	86°06'48"	0.[illegible]
Cumberland Utility District	Cumberland River	207.6	36°12'30"	86°38'30"	
Harpeth Valley Utility District	Cumberland River- Cheatham Lake	172.5	36°08'10"	86°55'15"	2.7230
Madison Suburban Utility District	Cumberland River	200.3	36°14'22"	86°12'52"	7.1290
Nashville-Plant No. 1	Cumberland River	193.8	-	-	63.502
Nashville-Plant No. 2	Cumberland River	206.3	-	-	35.000
Old Hickory Utility District	Cumberland River	218.8	36°15'40"	86°38'30"	0.5790
Dickson	Impounded Reservoir	-	36°04'48"	87°24'14"	0.6500
Turnbull Utility District	Turnbull Creek	11.1	36°03'30"	87°12'15"	1.2000
Erin	Cumberland River	108.3	36°25'25"	87°34'33"	0.41[illegible]
Clarksville	Cumberland River Big West Fork Creek	132.8 5.5	-	-	9.1710

Adams-Cedar Hill	Red River	34.1	36°05'20"	87°35'55"	0.0960
Greenbrier	Impounded Reservoir	-	-	-	0.2810
Springfield	Sulphur Fork Creek	-	36°31'36"	86°52'54"	-
White House Utility District	Cumberland River- Old Hickory Lake	216.5	36°17'50"	86°38'00"	2.0200
Murfreesboro	East Fork Stones River (Spring)	12.3	-	-	5.3050
Smyrna	Stones River (Percy Priest Reservoir)	-	35°59'55"	86°28'45"	1.7230
Carthage	Cumberland River	309.0	36°14'36"	85°56'45"	0.3710
Dover	Cumberland River	88.8	36°29'27"	37°50'22"	0.1360
Gallatin	Cumberland River	239.1	36°20'25"	86°26'25"	2.3900
Hendersonville Utility District	Drakes Creek Cumberland River	3.7 222.1	36°17'45"	86°37'50"	2.1510
Portland	Impounded Reservoir	-	-	-	0.4330
Westmoreland	Impoundment		36°36'23"	86°29'23"	0.1640
Hartsville	Cumberland River	278.6	36°22'25"	86°10'44"	0.2810
Franklin	Harpeth River	81.5	35°54'30"	86°51'30"	1.9630
Lebanon	Cumberland River	263.0	36°17'57"	86°15'47"	2.718
West Wilson Utility District	Cumberland River	225.6	36°16'32"	86°33'35"	0.8000

Ref 18

M.2 - SITE MAINTENANCE FORM

* ACTION: _ *

EPA ID : TND981473515

SITE NAME: KENNON SITE (GENESCO) SOURCE: T * ________________ _ *

STREET : WILSON PIKE CONG DIST: 06 * ________________ __ *

CITY : BRENTWOOD ZIP: 37027 * ________________ _____-____ *

CNTY NAME: WILLIAMSON CNTY CODE : 187 * ________________ ___ *

LATITUDE : 35/57/20.0 LONGITUDE : 086/45/47.0 * __/__/__._ __/__/__._ *

LL-SOURCE: G LL-ACCURACY: * _ _ *

SMSA : 5360 HYDRO UNIT: 05130204 * ____ ________ *

INVENTORY IND: Y REMEDIAL IND: Y REMOVAL IND: N FED FAC IND: N * _ _ _ _ *

NPL IND: N NPL LISTING DATE: NPL DELISTING DATE: * _ __/__ __/__ *

SITE/SPILL IDS: * __ __ __ __ __ *

RPM NAME: SHAVER RPM PHONE: 404-347-2234 * ________________ ___-___-____ *

SITE CLASSIFICATION: SITE APPROACH: * __ ___ *

DIOXIN TIER: REG FLD1: REG FLD2: * ____ ______ _ *

RESP TERM: PENDING ( ) NO FURTHER ACTION ( ) * PENDING (_) NO FURTHER ACTION (_) *

ENF DISP: NO VIABLE RESP PARTY ( ) VOLUNTARY RESPONSE ( ) * _ _ *
ENFORCED RESPONSE ( ) COST RECOVERY ( ) * _ _ *

SITE DESCRIPTION:

* ____ *
* ____ *
* ____ *
* ____ *

M.2 - PROGRAM MAINTENANCE FORM

* ACTION: _ *

SITE: KENNON SITE (GENESCO)

EPA ID: TND981473515 PROGRAM CODE: H01 PROGRAM TYPE: * _ *

PROGRAM QUALIFIER: ALIAS LINK : * ___ __ *

PROGRAM NAME: SITE EVALUATION * ______________________________ *

DESCRIPTION:

* ____ *

* ____ *

* ____ *

* ____ *

M.2 - EVENT MAINTENANCE FORM

* ACTION: _ *

SITE: KENNON SITE (GENESCO)
PROGRAM: SITE EVALUATION

EPA ID: TND981473515 PROGRAM CODE: H01 EVENT TYPE: DS1

FMS CODE: EVENT QUALIFIER : EVENT LEAD: E * _ ___ _ *

EVENT NAME: DISCOVERY STATUS: * ______________________________ _ *

DESCRIPTION:

* ____ *
* ____ *
* ____ *
* ____ *

ORIGINAL	CURRENT	ACTUAL			
START:	START:	START:	* __/__/__	__/__/__	__/__/__ *
COMP :	COMP :	COMP : 02/28/86	* __/__/__	__/__/__	__/__/__ *

HQ COMMENT:

* ____ *

RG COMMENT:

* ____ *

COOP AGR #	AMENDMENT #	STATUS	STATE %
			0

* __________ __________ __ ___ *

M.2 - EVENT MAINTENANCE FORM

* ACTION: _ *

SITE: KENNON SITE (GENESCO)
PROGRAM: SITE EVALUATION

EPA ID: TND981473515 PROGRAM CODE: H01 EVENT TYPE: PA1

FMS CODE: EVENT QUALIFIER : EVENT LEAD: S * _ ___ _ *

EVENT NAME: PRELIMINARY ASSESSMENT STATUS: * ______________________________ _ *

DESCRIPTION:

* ____ *
* ____ *
* ____ *
* ____ *

ORIGINAL	CURRENT	ACTUAL			
START:	START:	START: 06/13/86	* __/__/__	__/__/__	__/__/__ *
COMP :	COMP :	COMP : 06/13/86	* __/__/__	__/__/__	__/__/__ *

HQ COMMENT:

* ____ *

RG COMMENT:

* ____ *

COOP AGR #	AMENDMENT #	STATUS	STATE %
			0

* __________ __________ __ ___ *

M.2 - EVENT MAINTENANCE FORM

* ACTION: _ *

SITE: KENNON SITE (GENESCO)
PROGRAM: SITE EVALUATION

EPA ID: TND981473515 PROGRAM CODE: H01 EVENT TYPE: SI1

FMS CODE: EVENT QUALIFIER : EVENT LEAD: S * _ ___ _ *

EVENT NAME: SITE INSPECTION STATUS: * ______________________________ _ *

DESCRIPTION:

* ____ *
* ____ *
* ____ *
* ____ *

ORIGINAL	CURRENT	ACTUAL				
START:	START:	START:	* __/__/__	__/__/__	__/__/__ *
COMP :	COMP :	COMP : 03/29/87	* __/__/__	__/__/__	__/__/__ *

HQ COMMENT:

* ____ *

RG COMMENT:

* ____ *

COOP AGR #	AMENDMENT #	STATUS	STATE %
			0

* __________ __________ __ ___ *

M.2 - COMMENT MAINTENANCE FORM

SITE: KENNON SITE (GENESCO)

EPA ID: TND981473515

COM NO	COMMENT	ACTION
001	DICHLOROETHANE, TRICLOROETHYLENE AN	* _ ______ *
	D OTHER CHEMICALS ARE	* ______ *
002	BURIED IN ABOUT 2 OR 3 COVERED TREN	* _ ______ *
	CHES IN PASTURELAND	* ______ *
003	OWNED BY A EMMETT KENNON. THIS IS O	* _ ______ *
	VER ABOUT A 2 ACRE	* ______ *
004	AREA. WASTES ARE FROM GENERAL ADHES	* _ ______ *
	IVES, NASHVILLE, TENN.	* ______ *
005	A DIVISION OF GENESCO, INC. NASHVIL	* _ ______ *
	LE.	* ______ *
006	GENESCO IS WILLING TO CLEAN UP THE	* _ ______ *
	SITE.	* ______ *
007	THE SITE IS NOW BEING INVESTIGATED	* _ ______ *
	BY A CONTRACTOR FOR GENESCO	* ______ *
008	AND TN SUPERFUND.	* _ ______ *
		* ______ *
009	X	* _ ______ *
		* ______ *
010	MIKE NORMAN, EPA	* _ ______ *
		* ______ *
011	TWO FAMILY DRINKING WELLS AND A SPR	* _ ______ *
	ING IN THE AREA ARE	* ______ *
012	KNOWN TO BE CONTAMINATED. THE FAMIL	* _ ______ *
	IES ARE BEING FURNISHED	* ______ *

M.2 - COMMENT MAINTENANCE FORM

SITE: KENNON SITE (GENESCO)

EPA ID: TND981473515

COM NO	COMMENT	ACTION
013	BOTTLED WATER AND A PUBLIC WATER SU	* _ ____________ *
	PPLY IS ABOUT TO BE CONTRUCTED TO T	* ____________ *
014	HEM AT GENESCO'S EXPENSE.	* _ ____________ *
		* ____________ *

M.2 - REGIONAL UTILITY MAINTENANCE FORM

SITE: KENNON SITE (GENESCO)

EPA ID: TND981473515

REG CODE: HSCH-01 * ACTION: _ *

DESCRIPTION: HEAVY METALS * ________________ *

* ________________ *

DATE1: * __/__/__ *

DATE2: * __/__/__ *

DATE3: * __/__/__ *

FREE FIELD: * __________ *

REG CODE: HSCS-01 * ACTION: _ *

DESCRIPTION: SOLVENTS * ________________ *

* ________________ *

DATE1: * __/__/__ *

DATE2: * __/__/__ *

DATE3: * __/__/__ *

FREE FIELD: * __________ *

REG CODE: HSC1-01 * ACTION: _ *

DESCRIPTION: ORGANICS * ________________ *

* ________________ *

DATE1: * __/__/__ *

DATE2: * __/__/__ *

DATE3: * __/__/__ *

FREE FIELD: * __________ *

M.2 - REGIONAL UTILITY MAINTENANCE FORM

SITE: KENNON SITE (GENESCO)

EPA ID: TND981473515

REG CODE: HTDO-01 * ACTION: _ *
DESCRIPTION: DRINKING WATER CONTAMINATION OBSERVED * ____ *
* ____ *
DATE1: * __/__/__ *
DATE2: * __/__/__ *
DATE3: * __/__/__ *
FREE FIELD: * ____ *

REG CODE: HTGO-01 * ACTION: _ *
DESCRIPTION: GROUND WATER CONTAMINATION OBSERVED * ____ *
* ____ *
DATE1: * __/__/__ *
DATE2: * __/__/__ *
DATE3: * __/__/__ *
FREE FIELD: * ____ *

REG CODE: OPD4-01 * ACTION: _ *
DESCRIPTION: PIT * ____ *
* ____ *
DATE1: * __/__/__ *
DATE2: * __/__/__ *
DATE3: * __/__/__ *
FREE FIELD: * ____ *

M.2 - REGIONAL UTILITY MAINTENANCE FORM

SITE: KENNON SITE (GENESCO)

EPA ID: TND981473515

REG CODE:	4C85-01	* ACTION: _ *
DESCRIPTION:	CERCLA FY85 COOP. AG.,PA	* ______ *
		* ______ *
DATE1:		* __/__/__ *
DATE2:		* __/__/__ *
DATE3:		* __/__/__ *
FREE FIELD:		* ______ *
REG CODE:	4PHR-01	* ACTION: _ *
DESCRIPTION:	PRELIMINARY HAZARD RANKING	* ______ *
		* ______ *
DATE1:		* __/__/__ *
DATE2:		* __/__/__ *
DATE3:		* __/__/__ *
FREE FIELD:	29.19	* ______ *

Rec'd 6/13/86

TENNESSEE DEPARTMENT OF HEALTH AND ENVIRONMENT
CUSTOMS HOUSE
701 BROADWAY
NASHVILLE, TENNESSEE 37219-5403

June 10, 1986

Mr. Joel Veater, Project Director
Site Screening and Investigations Unit
CERCLA 104 Program
Region IV, U.S. Environmental Protection Agency
345 Courtland Street
Atlanta, GA 30365

Dear Mr. Veater:

As requested by your office I am enclosing the completed Preliminary Assessment for the Kennon (Genesco) Site, Brentwood, Tennessee.

Because of the nature of this site it was necessary for us to proceed expeditiously under our State program. We have issued a Commissioner's Order and the Remedial Investigation is well underway.

If the enclosed is not complete, please advise.

Sincerely,

James C. Ault

James C. Ault, Director
Division of Superfund

JCA/ah/SPF-dd1

Enclosure

KENNON SITE (GENESCO)

On May 21, 1985 the Tennessee Department of Health & Environment Superfund Section was informed of a potential chemical waste site once used by a division of Genesco, Inc. (General Adhesives). The site is located on a farm in rural Williamson County owned by Emmett N. Kennon. From the date of this first notification, responsible parties have cooperated fully. Genesco has hired a professional consultant firm to do a complete Remedial Investigation/Feasibility Study (to date this has included 30 on site monitoring wells, a geophysical study with both electromagnetic and ground penetrating radar and test pits on site to determine the extent and nature of the dumping).

The Remedial Investigation/Feasibility Study and all other work at the site is being performed in an accelerated manner by the responsible parties. State efforts have concentrated on determining the extent of off site migration of contaminants and supervising on site work by the responsible parties. A Commissioners Order has been issued by the State of Tennessee to insure that adequate, timely, and appropriate actions be initiated to address any environmental and health concerns that may arise due to this site.

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
TN	

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site): Kennon Site (Genesco)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER: Wilson Pike
03 CITY: Brentwood	04 STATE: TN · 05 ZIP CODE: 37027 · 06 COUNTY: Williamson · 07 COUNTY CODE: 187 · 08 CONG DIST: 06
09 COORDINATES LATITUDE: 35° 57' 20". · LONGITUDE: 86° 45' 47".	

10 DIRECTIONS TO SITE (Starting from nearest public road)
Take I-65 South from Nashville to Moore's Lane exit, turn left on Moore's Lane and follow it to Wilson Pike intersection. Turn right on Wilson Pike and go approx. 1½ mi. until you go under a railroad overpass. Entrance to site is about 30 yds. on left after railroad overpass - steel gate at entrance.

III. RESPONSIBLE PARTIES

01 OWNER (if known): Emmett Kennon	02 STREET (Business, mailing, residential): 2934 Sidco Drive
03 CITY: Nashville	04 STATE: TN · 05 ZIP CODE: 37216 · 06 TELEPHONE NUMBER: (615) 242-1667
07 OPERATOR (If known and different from owner): Same	08 STREET (Business, mailing, residential): Same
09 CITY: Same	10 STATE: Same · 11 ZIP CODE: · 12 TELEPHONE NUMBER: ( ) Same

13 TYPE OF OWNERSHIP (Check one)
☒ A. PRIVATE ☐ B. FEDERAL: ______ (Agency name) ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL
☐ F. OTHER: ______ (Specify) ☐ G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)
☐ A. RCRA 3001 DATE RECEIVED: __/__/__ (MONTH DAY YEAR) ☒ B. UNCONTROLLED WASTE SITE (CERCLA 103 c) (Generator) DATE RECEIVED: 5 21 85 (MONTH DAY YEAR) ☐ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION
☒ YES DATE 7 / 2 / 85 - 1-22-86 (MONTH DAY YEAR)
☐ NO
BY (Check all that apply) ☐ A. EPA ☐ B. EPA CONTRACTOR ☒ C. STATE ☐ D. OTHER CONTRACTOR ☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER: ______ (Specify)
CONTRACTOR NAME(S): ______

02 SITE STATUS (Check one)
☐ A. ACTIVE ☒ B. INACTIVE ☐ C. UNKNOWN

03 YEARS OF OPERATION
1976 | 1976 (BEGINNING YEAR / ENDING YEAR) ☐ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED
Approximately 800 55 gallon barrels of waste materials from General Adhesives, a division of Genesco Inc., waste on site is volatile organics, heavy metals, and base-neutral extractable organics.

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION
Waste was dispossed of in abandoned phosphate pits and earthen trenches. Site is covered and migration at this time would be through groundwater. There are wells and springs in the area. There is not any potential of fire, explosion, air or direct contact while the site is covered.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents)
☒ A. HIGH (Inspection required promptly) ☐ B. MEDIUM (Inspection required) ☐ C. LOW (Inspect on time available basis) ☐ D. NONE (No further action needed, complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT: James C. Ault	02 OF (Agency/Organization): Director - Division of Superfund	03 TELEPHONE NUMBER: (615) 741-3424
04 PERSON RESPONSIBLE FOR ASSESSMENT: James C. Ault	05 AGENCY: State · 06 ORGANIZATION: TDH&E Div. of Superfund · 07 TELEPHONE NUMBER: (615) 741-3424	08 DATE: 5 / 20 / 86 (MONTH DAY YEAR)

EPA FORM 2070-12 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
TN	

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- X A. SOLID
- B. POWDER, FINES
- X C. SLUDGE
- D. OTHER ______ (Specify)
- E. SLURRY
- X F. LIQUID
- G. GAS

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

TONS ______

CUBIC YARDS ______

NO. OF DRUMS approx. 800 55 gal.

03 WASTE CHARACTERISTICS (Check all that apply)

- X A. TOXIC
- B. CORROSIVE
- C. RADIOACTIVE
- X D. PERSISTENT
- X E. SOLUBLE
- F. INFECTIOUS
- G. FLAMMABLE
- X H. IGNITABLE
- X I. HIGHLY VOLATILE
- J. EXPLOSIVE
- K. REACTIVE
- L. INCOMPATIBLE
- M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE	X		800 55 gal. drums of mixed
OLW	OILY WASTE			waste mostly organic solvents
SOL	SOLVENTS	X		
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
	Arsenic		soil	18	ppm
	toluene		soil	6200	ppm
	1,1,1 - trichlorethane		soil	160	ppm
	trichlorothane		soil	6.9	ppm
	Bis (2-ethyihexyl) phthalate		trenches	940	ppm
	lead		soil	7.6	ppm
	chromium		soil	14	ppm
	naphthalene		trenches	110	ppm
	1,2 - dichlorethane		soil	11.11	ppm
	ethyl benzene		soil	19.19	ppm
	tetrachloroethane		soil	220	ppm

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Letter from the Genesco Company, Inc. (5/21/85) informing state of the site. On site inspection and investigation by state personnel.

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION
01 STATE: TN
02 SITE NUMBER:

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 X A. GROUNDWATER CONTAMINATION — 02 OBSERVED (DATE: 1-22-86) — POTENTIAL — X ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 1 to 100 a 3 mile radius
04 NARRATIVE DESCRIPTION

Initial sampling of groundwater has indicated that 2 wells and 1 spring are contaminated. Sampling is still on going.

01 X B. SURFACE WATER CONTAMINATION — 02 OBSERVED (DATE:) — POTENTIAL — ALLEGED
03 POPULATION POTENTIALLY AFFECTED:
04 NARRATIVE DESCRIPTION

None- Sampling in the area has not shown any contaminants migrating off site by way of surface water.

01 X C. CONTAMINATION OF AIR — 02 OBSERVED (DATE:) — POTENTIAL — ALLEGED
03 POPULATION POTENTIALLY AFFECTED:
04 NARRATIVE DESCRIPTION

None - Site is covered with soil at this time.

01 X D. FIRE/EXPLOSIVE CONDITIONS — 02 OBSERVED (DATE:) — POTENTIAL — ALLEGED
03 POPULATION POTENTIALLY AFFECTED:
04 NARRATIVE DESCRIPTION

None - Site is covered with soil at this time.

01 X E. DIRECT CONTACT — 02 OBSERVED (DATE:) — POTENTIAL — ALLEGED
03 POPULATION POTENTIALLY AFFECTED:
04 NARRATIVE DESCRIPTION

None - Site is covered with soil at this time.

01 X F. CONTAMINATION OF SOIL — 02 OBSERVED (DATE:) — X POTENTIAL — ALLEGED
03 AREA POTENTIALLY AFFECTED: (Acres)
04 NARRATIVE DESCRIPTION

There is a potential for migration off site to contaminate soil in the surrounding area due to position on landscape.

01 X G. DRINKING WATER CONTAMINATION — 02 OBSERVED (DATE: 1-22-86) — POTENTIAL — X ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 1 to 100 3 mile radius
04 NARRATIVE DESCRIPTION

Groundwater in this area was being used for drinking water. People in the area are on bottled water and public water lines are under construction.

01 H. WORKER EXPOSURE/INJURY — 02 OBSERVED (DATE:) — POTENTIAL — ALLEGED
03 WORKERS POTENTIALLY AFFECTED:
04 NARRATIVE DESCRIPTION

Not Applicable

01 X I. POPULATION EXPOSURE/INJURY — 02 OBSERVED (DATE:) — POTENTIAL — ALLEGED
03 POPULATION POTENTIALLY AFFECTED:
04 NARRATIVE DESCRIPTION

None - Site is covered with soil at this time.

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
TN	

II. HAZARDOUS CONDITIONS AND INCIDENTS *(Continued)*

01 ☐ J. DAMAGE TO FLORA — 02 ☐ OBSERVED (DATE: ________) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None

01 ☐ K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE: ________) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION *(include name(s) of species)*

None

01 ☐ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE: ________) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES *(Spills/runoff/standing liquids/leaking drums)* — 02 ☐ OBSERVED (DATE: ________) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ________ 04 NARRATIVE DESCRIPTION

None

01 ☐ N. DAMAGE TO OFFSITE PROPERTY — 02 ☐ OBSERVED (DATE: ________) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE: ________) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None

01 ☒ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: ________) ☐ POTENTIAL ☒ ALLEGED
04 NARRATIVE DESCRIPTION

Dumping occured in 1978 without state approval.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

None

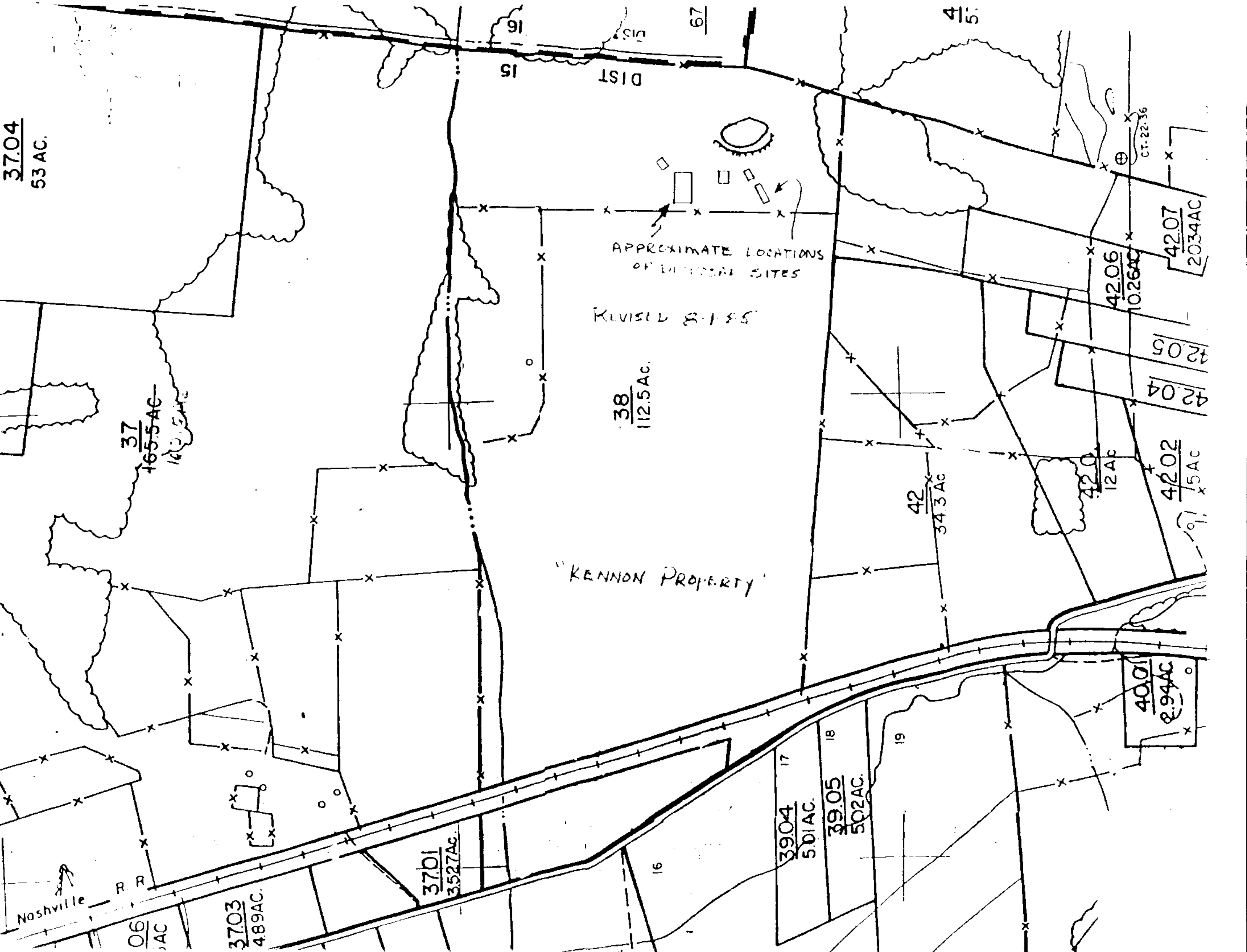
III. TOTAL POPULATION POTENTIALLY AFFECTED: 1 - 100

IV. COMMENTS

A full site investigation is on going. An alternate drinking water source has been supplied. A State Commissioners Order has been issued and is being implemented.

V. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

State files, Reports from Responsible parties and their contractor, Site Investigations and interviews with residents.



DIST 15
16
67
37.04
53 AC.
APPROXIMATE LOCATIONS
OF DISPOSAL SITES
REVISED 8-1-85
38
112.5 Ac.
37
165.5 AC
"KENNON PROPERTY"
42
34.3 Ac
42.07
20.34AC
42.06
0.26AC
42.05
42.04
42.01
12 Ac
42.02
5 Ac
40.01
8.94AC
39.04
5.01AC.
39.05
5.02AC.
37.01
3.527Ac.
37.03
4.89AC.
Nashville R R
17
18
19
16

POOR LEGIBILITY

PORTIONS OF THIS DOCUMENT MAY BE UNREADABLE, DUE TO THE QUALITY OF THE ORIGINAL

STATE OF TENNESSEE
DEPARTMENT OF HEALTH AND ENVIRONMENT

IN THE MATTER OF:	)	
	)	
GENESCO INC.	)	DIVISION OF SUPERFUND
EMMETT N. KENNON	)	
AND	)	
ROSE S. KENNON	)	NO. 86-3013
	)	
RESPONDENTS	)	

COMMISSIONER'S ORDER

Comes now, James E. Word, Commissioner of the Tennessee Department of Health and Environment, and states that:

PARTIES

I.

James E. Word is the duly appointed Commissioner of the Tennessee Department of Health and Environment (the "Department").

II.

Respondent, Genesco Inc., is a domestic corporation qualified to do business in Tennessee. Its agent for service of process is W. C. O'Connor whose mailing address is Genesco Park, Nashville, TN 37202.

III.

Respondents, Emmett N. Kennon, and wife, Rose S. Kennon are husband and wife and both are residents of the state of Tennessee. Their mailing address is 2934 Sidco Drive, Nashville, TN 37204.

JURISDICTION

IV.

Pursuant to T.C.A. Section 68-46-206, the Commissioner is authorized to issue an order to any liable party requiring such party to investigate, identify, contain, and clean-up, including monitoring and maintenance, inactive hazardous substance sites which pose or may pose a danger to public health, safety or the environment because of the release or threatened release of hazardous substances. Pursuant to T.C.A. Section 68-46-215 the Commissioner may issue an Order for correction to the appropriate person, who will then comply with the Order within the time limit specified in the Order.

V.

Respondents are "persons" within the meaning of T.C.A. Section 68-46-104 and each is also a "liable party" within the meaning of T.C.A. Section 68-46-202.

FACTS

VI.

Respondent, Genesco Inc. (hereinafter "Genesco"), is a Tennessee corporation with its executive offices located at Genesco Park, Nashville, TN. Genesco operates in two major industry segments which are footwear and men's apparel. It employs approximately 3,900 persons in Tennessee.

VII.

General Adhesives, formerly known as General Adhesives and Chemical Company, is a division of Genesco Inc. which operates a manufacturing plant at 6100 Centennial Boulevard in Nashville, TN. It manufactures and sells specialty industrial and consumer products which includes adhesives, sealants, and coatings utilizing solvent-based thermoplastic and water-based technologies. It is a hazardous waste generator utilizing the EPA installation identification number TND 001981240. It is a permitted hazardous waste transporter utilizing the EPA installation identification number TND 001367549.

VIII.

Emmett N. Kennon and Rose S. Kennon are owners of certain property described herein. They have owned the property since at least 1976. A portion of said property was used for a period of time in approximately 1978 for the disposal of certain hazardous substances. To the knowledge of the Department it has not been operated as a disposal site since that time and, therefore, said property is an inactive hazardous substance disposal site, (hereinafter, the "site").

IX.

The site is within a 146.8 acre tract located along Wilson Pike in Williamson County, Tennessee, and all of said tract is located within the city limits of Brentwood, Tennessee. The site is approximately two (2) acres.

X.

The site was operated by Respondents, Kennons, as a disposal site for construction waste and for certain other waste described herein which were hazardous substances. At least one or more of the trenches used in the disposal operation were already in existence from the excavation for phosphate mining.

XI.

Genesco notified the Department on or about August 19, 1981 that it was a generator of hazardous waste. It reported that it generated hazardous waste which were described as being "waste, cement and solvents, N.O.S.". The waste was further described as being ignitable (as described in Division rule 1200-1-11-.02 promulgated under the Hazardous Waste Management Act). The waste was reported to be generated at an average rate of 7,400 kilograms per month. The major compounds of the waste were described as being acetone, hexane, toluene, methyl ethyl ketone, and 1, 1, 1 trichloroethylene.

XII.

On or about May 21, 1985 Genesco reported in a letter to the Department, that during the summer and/or fall of 1978, General Adhesives had disposed of approximately eight hundred (800) 55 gallon barrels of waste material in a rural area of Williamson County, Tennessee". The rural disposal area is now known to be the property of Respondents Emmett N. Kennon and Rose S. Kennon. To the knowledge and belief of the Department, the waste was transported to the site by Respondent Genesco and/or by Respondents Kennon.

XIII.

In the same letter referenced above, it was stated that approximately 50 to 80 barrels were buried and the remainder of the waste was poured from the barrels into earthern trenches at the site.

XIV.

It was further stated in the same letter, that the exact amount and contents of the waste material were unknown; however, Genesco believed that the waste contained water-based adhesives and may have contained acetone, ethyl acetone, hexane, methylene chloride, methyl ethyl ketone, rubber solvent, toluene, 1, 1, 1 - trichloroethane, trichloroethylene, and organic fillers.

XV.

On or about August 9, 1985 Genesco submitted a plan of investigation of the site to the Department. The plan was revised according to Department comments and resubmitted on September 25, 1985. The plan was approved by the Department on or about October 2, 1985. Genesco then began to investigate the extent of any environmental impact including the sampling of waste, soil, and water in and around the site. Water samples included samples of leachate at the site, springs, a seep, and water wells in the vicinity.

XVI.

Laboratory analysis of certain samples reveal the presence of hazardous substances including, but not limited to: arsenic, lead, chromium, trans-1, 2-dichloroethene, 1,1,1 trichloroethane, 1, 1-dichloroethane, 1, 2-dichloroethane, toluene, bis (2-ethyl hexyl) phthalate, naphthalene, ethylbenzene and trichloroethane. The location of a spring and a seep and the laboratory analysis of the same indicate that the contaminants are migrating from the site. The exact analysis results and sampling locations are listed in Tables A, B, C and D of this Order.

TABLE A

Samples Collected January 28, 1986 by Department Staff at an On-Site Seep Approximately 500 feet Southeast of the Site

Hazardous Substance	Level of Contamination	Type of Sample
Arsenic	.217 ppm	water
Arsenic	18.0 ppm	soil
Lead	.12 ppm	water
Lead	7.6 ppm	soil
Chromium	.15 ppm	water
Chromium	9.3 ppm	soil

TABLE B

Samples Collected February 7, 1986 by Department Staff at an Off-Site Spring (Hackett Spring) Approximately 1200 Feet Southeast of the Site

Hazardous Substances	Level of Contamination	Type of Sample
Trans -1, 2-dichloroethene	.07 ppm	water
1, 1, 1 trichloroethane	.013 ppm	water
1, 1-dichloroethane	.026 ppm	water

TABLE C

Sample Collected January 22, 1986 by Department

Staff at Pit A from the Disposal Site

Hazardous Substance	Level of Contamination	Type of Sample
Arsenic	9 ppm	soil
Chromium	14 ppm	soil
Lead	8 ppm	soil
1, 1-dichloroethane	4.3 ppm	soil
1, 2-dichloroethane	1.2 ppm	soil
Trans -1, 2-dichloroethane	3.3 ppm	soil
Toluene	120 ppm	soil
1, 1, 1-trichloroethane	2.2 ppm	soil

TABLE D

Samples Collected January 22, 1986 by Department

Staff from PIT B from the Disposal Site

Hazardous Substance	Level of Contamination	Type of Sample
Chromium	14 ppm	waste
Bis (2-ethyl hexyl) phthalate	940 ppm	waste
Naphthalene	110 ppm	waste
Chromium	14 ppm	soil
1, 2-dichlorethane	11.11 ppm	soil
Ethyl benzene	19.19 ppm	soil
Tetrachloroethene	220 ppm	soil
Toluene	6,200 ppm	soil
1, 1, 1-trichloroethane	160 ppm	soil
Trichloroethane	6.9 ppm	soil

XVII.

Based on the laboratory analysis and the location of these samples, it is the opinion of the Department that hazardous substances have been disposed of at the site, migrated from the site, and that the substances have contaminated ground water. Immediate remedial measures are necessary and appropriate because of potential harm to the public health and environment.

CLAIMS FOR RELIEF

XVIII.

By owning and operating a hazardous substance disposal site and by being the generator of the hazardous substances who at the time of disposal caused such substance to be disposed at the site, each of the Respondents is a "liable party" as defined at T.C.A. Section 68-46-202 which is defined as:

"(a) The owner or operator of an inactive hazardous substance site;

(b) Any person who at the time of disposal was the owner or operator of an inactive hazardous substance site;

(c) Any generator of hazardous substance who at the time of disposal caused such substance to be disposed of at an inactive hazardous substance site; or

(d) Any transporter of hazardous substances which is disposed of at an inactive hazardous substance site who, at the time of disposal, selected the site of disposal of such substances."

This site is an inactive hazardous substance site within the meaning of T.C.A. Section 68-46-202 which is defined as "any site or area where hazardous substance disposal has occurred."

XIX.

PREMISES CONSIDERED, I, James E. Word, hereby ORDER the Respondents to comply with the following:

A. The Respondents shall conduct certain IMMEDIATE REMEDIAL MEASURES which must include the following:

1. The Respondents must submit a plan to the Department within fifteen (15) days of the receipt of this Order describing how the Respondents will provide a permanent adequate, and potable water source for human consumption and household use to the residents potentially impacted by the site. Until such time as a permanent water supply is provided, the Respondents shall supply adequate drinking water to those persons in the vicinity of the site that they are presently supplying and others deemed appropriate by the Department.

2. The Respondents will define the potentially impacted area within the above referenced plan and said plan will include a proposed chronology of activities and a schedule for the completion of activities. The plan will describe how the Respondents will provide and install said water source including any agreements with public utility districts. The plan will further include a well water monitoring program for sampling and testing specified existing wells outside the perimeter of the "potentially impacted area."

3. The Respondents will submit a separate plan to the Department within thirty (30) days of the receipt of this Order which will describe how the Respondents will control the source of release of the contaminants to prevent migration of the same. Said plan will define the scope of the source and provide a proposal of activities for immediate remedial measures and a schedule for completion of said activities. The Respondent will implement the plan upon the approval and notice to procede of the Department.

4. The Department will review said plans and may require revisions as deemed necessary. Respondents shall implement all immediate remedial action plans as they are approved by the Department.

B. INITIAL ASSESSMENT

1. Within sixty (60) days of receipt of this Order, the Respondents shall submit to the Department any existing data available to the

Respondents which is pertinent to the assessment of the hazard that the specified site may pose to public health and the environment. This information shall include available data listed in paragraph XIX C2 of this Order and shall be submitted in duplicate.

2. Following receipt of this information, the Department will schedule an initial assessment conference which the Respondents shall attend in the Nashville Office of the Department, Division of Superfund. The Respondents shall be given seven (7) days notice prior to this meeting. The purpose of this conference will be to discuss existing data and determine the need for further investigation, remedial action and/or long term monitoring and maintenance. A schedule for future activities, deemed necessary by the Department, shall be established at this conference. Depending on existing data, the Department may determine that no further action is necessary. In all other cases, the schedule established in this conference will provide the dates by which the activities enumerated herein must be completed.

C. INVESTIGATION PROGRAM

1. According to the schedule established in the initial assessment conference, the Respondents shall submit to the Department a proposed Investigation Plan.

2. In order to provide an accurate assessment of the hazard posed by the site to public health and the environment and to develop design data for remedial action, the Investigation Plan shall include, but not be limited to, assessment of the following factors:

   a. Types and quantities of hazardous substances disposed at the site.

   b. Physical state, analytical summary, toxicological characteristics and other pertinent data defining hazardous substances present at the site.

c. Methods and extent of the disposal operation including containment methods used, plans and/or photographs of site operation, perimeter and depth of disposal area, and type of disposal operation conducted (open burning, trench, surface impoundment, etc.).

d. Observed release of contaminants to ground water, surface water or air, including sampling, to determine contaminant concentrations and extent of contaminant migration.

e. Hydrogeologic factors to determine depth to groundwater, permeability of the unsaturated zone, distance to nearest surface water and slope of the disposal area and intervening terrain.

f. Population and environment potentially affected:

   (1.) Ground water use and population served by ground water sources within a three (3) mile radius of the perimeter of contaminant migration.

   (2.) Surface water use and population served within a three (3) mile reach downstream of the perimeter of contaminant migration.

   (3.) Population potentially affected by contaminant releases to the air within a four (4) mile radius of the perimeter of contaminant migration.

   (4.) Distance from the site to sensitive environments such as a natural wetland, critical habitat for an endangered species or a National Wildlife Refuge.

g. Fire and explosion hazard assessment of the site.

h. Direct contact hazard assessment of the site.

3. The Investigation Plan must include cost estimates and a proposed schedule for completion of activities involved in the investigation. Following a review of the Plan, the Department may schedule a meeting which Respondents shall attend to discuss any revisions required by the Department. The Respondents will be given seven (7) days notice prior to the meeting. On or before a deadline date established in this review meeting, a revised Investigation Plan shall be submitted by the Respondents to the Department. Upon approval by the Department of the revised Investigation Plan, the Respondents shall begin required activities according to the revised Investigation Plan.

D. REMEDIAL ACTION SELECTION AND IMPLEMENTATION

1. Following completion of the investigation activities, a report providing an assessment of the hazard posed by the site to public health and the environment and proposing remedial action alternatives shall be submitted by the Respondents to the Department according to the Investigation Plan schedule. One of the alternatives that shall be addressed in the report shall be the removal of the source of contamination. This report will be referred to as a Hazard Evaluation/Remedial Action report (herein after referred to as "HE/RA"). Remedial action alternatives must include cost estimates and proposed schedules for completion of activities involved in remedial action implementation.

2. Assessment of each remedial action alternative must include consideration of the following factors:

   a. The technological feasibility of each alternative;

   b. The cost-effectiveness of each alternative;

   c. The nature of the danger to the public health, safety, and the environment posed by the hazardous substances at the site; and

d. The extent to which each alternative would achieve the goal of T.C.A. Section 68-46-206(d) which states, in part, ". . . The goal of any such action shall be cleanup and containment of the site through the elimination of the threat to public health, safety and the environment posed by the hazardous substance."

3. Following the Department's review of the HE/RA Report, the Department may schedule a meeting which the Respondents shall attend, to discuss any revisions required by the Department. The Respondents will be given seven (7) days notice prior to the meeting. On or before a deadline date established in this review meeting, a final HE/RA Report shall be submitted to the Department. Upon receipt of approval by the Department of the final HE/RA Report, the Respondents shall begin activities required by the final HE/RA Report, unless the Department determines no further action is necessary.

4. The HE/RA activities shall not be considered complete until the Department has reviewed these activities and issued a letter of acceptance to the Respondents.

E. SITE MONITORING AND MAINTENANCE

1. Where the Department determines a need for site monitoring and maintenance, the Respondents shall provide a Site Monitoring and Maintenance Plan (herein after referred to as "M/M Plan") which shall include a proposed schedule for completion of required activities and cost estimates within ninety (90) days of receipt of a request for said Plan by the Department.

2. Within forty-five (45) days of receipt of this M/M Plan by the Department, the Respondents shall attend a meeting with the Department to discuss any required revisions. On or before a deadline established in this review meeting, a revised M/M Plan shall be submitted by the Respondents to the Department. Upon receipt of approval by the Department, the revised M/M Plan will go into effect.

F. To the extent practicable, any investigation, identification, containment and clean-up, including monitoring and maintenance, shall be consistent with the national contingency plan promulgated pursuant to Section 105 of Public Law 96-510.

G. Certain activities may be deemed critical by the Department and shall require observation by the Department. The Respondents shall provide sufficient notice to the Department to allow scheduling of personnel for these activities. The Department also reserves the right to observe any other activities required pursuant to this Order.

H. Any failure to comply with approved schedules of activities required under this Order shall be a failure to comply with this Order.

I. In this Order, any reference to the singular includes the plural.

J. Further, I, James E. Word, do not waive any rights or authority available to me to assess the Respondents for liability for costs, expenditures, civil penalties or damages incurred by the State pursuant to this Order. I also reserve the right to order such further remedial action to be completed by the Respondents where it is determined that further remedial action is needed.

Issued in this office of the Commissioner of the Tennessee Department of Health and Environment this 5th day of March, 1986.

JAMES E. WORD, Commissioner
Tennessee Department of Health
and Environment

NOTICE OF RIGHTS

Respondents are hereby advised that in accordance with T.C.A. Section 68-46-215 they may secure a review of the necessity for or reasonableness of this Order by filing with the Commissioner, a written petition setting forth the grounds and reasons for objection and asking for a hearing in the matter involved before the Solid Waste Disposal Control Board. The Order shall become final and not subject to review unless the person or persons named herein shall file such petition for a hearing no later than thirty (30) days after the date such Order is secured. Hearings will be conducted in accordance with the Tennessee Uniform Administrative Procedures Act.

Correspondence regarding this Order should be addressed to Mary E. Johnston, TERRA Bldg. 6th Floor, Assistant General Counsel, 150 Ninth Avenue, North, Nashville, Tennessee 37203 or telephone (615)741-0657.

Mary E. Johnston
Mary E. Johnston
Assistant General Counsel

MEJ/djv
SWM Order - Genesco

Joel– What is the status of this?
Be

SITE DISCOVERY FORM

Part 1: Information necessary to add a site to CERCLIS

ACTION: A

EPA ID: TN

SITE NAME: General Adhesives

STREET: Wilson Pike CO[illegible]

CITY: Brentwood ZI[illegible]

CNTY NAME: Williamson CN[illegible]

LATITUDE: __ / __ / ___ LONGITUDE: ___

INVENTORY IND: Y REMEDIAL IND: Y REMOVAL

RPM NAME: Joe Young RPM PHONE: '

T=STATE

Office

5/29/86
Listed - State to provide a PA in next few days
Joel

SITE DESCRIPTION: (optional)

- Dichloroethane, trichloroethylene and other chemicals are buried in about 2 or 3 covered trenches in pastureland owned by a Emmett Kennon. This is over about a 2 acre area.
- Wastes are from General adhesives, Nashville, Tenn. - a division of Genesco, Inc. Nashville. Genesco is willing to clean up the site. The site is now being investigated by a contractor for Genesco and TN superfund.

Part 2: Other site information

DATE SITE FIRST REPORTED: 02 / 28 / [illegible] REPORTED BY: Mike Norman, EPA

REASON FOR LISTING:

- Two family drinking wells and a spring in the area are known to be contaminated. The families are being furnished bottled water, and a public water supply is about to be constructed to them at Genesco's expense.

5/15/86

To: Site file - General Adhesives, Brentwood, Tenn.

From Joe Young

- Michael Norman of Emerg Response, EPA heard about the site when he received an informal inquiry via EPA Congressional / Public Affairs from Tenn. Congressman Bill Bonner (Bones). ~~Mr. Norman then called the State of Tenn Mr.~~ Congr. Bonner wanted to know what EPA knew about the site and/or what involvement EPA had with it. This inquiry was on or about 2/28/86.

- See attached Norman memo of 2/28/86.

- Joe Young of CERCLA site screening called Bill Forester of Tenn. CERCLA about the site on or about 5/13/86. He said I should call James Ault of Tenn. Superfund for information.

· I called Mr. Ault on 5/14/86. See the information on site ~~of~~ discovery form. He gave other information as follows:

- Emmett Kennon owns the site property. His mailing address is: 2934 Cidco Drive, Nashville, Tenn. 37204

- W. C. Conner is Genesco's attorney. Ralph Mosely is their environmental person.

- USGS is going to do a groundwater investigation of the site.

- Genesco's address is ~~6~~ Genesco Park, Nashville, Tenn. 37202

- General Adhesives is still in business. Their address is 6100 Centennial Blvd., Nashville, Tenn.

- Genesco & Tenn Superfund's ongoing site inv. includes sampling of the site.

SITE DISCOVERY FORM

Part 1: Information necessary to add a site to CERCLIS

ACTION: A

EPA ID: TN

SITE NAME: General Adhesives SOURCE: T (R=EPA, T=STATE

STREET: Wilson Pike CONG DIST: __ (optional)

CITY: Brentwood ZIP: _____ - ____

CNTY NAME: Williamson CNTY CODE: ___ (optional)

LATITUDE: __ / __ / ____ LONGITUDE: ___ /__ / ____ (optional)

INVENTORY IND: Y REMEDIAL IND: Y REMOVAL IND: N FED FAC IND: N

RPM NAME: Joe Young RPM PHONE: 404 - 347 - 2234 (EPA Project Office

SITE DESCRIPTION: (optional)

- Dichloroethane, trichloroethylene and other chemicals are buried in about 2 or 3 covered trenches in pastureland owned by a Emmett Kennon. This is over about a 2 acre area.
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DATE SITE FIRST REPORTED: 02 / 28 / 86 REPORTED BY: Mike Norman, EPA

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CITY: Brentwood ZIP: _____ - ____

CNTY NAME: Williamson CNTY CODE: ___ (optional)

LATITUDE: __ / __ / ____ LONGITUDE: ___ /__ / ____ (optional)

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GENESCO
BRENTWOOD, TN

2/28/86

James
PER CONVERSATION WITH M.C. AULT, DIRECTOR OF THE DIVISION OF SUPERFUND FOR TENNESSEE [(615) 741-3424] :

- TN IS PREPARING AN ORDER REQUIRING GENESCO TO DO A REMEDIAL INVESTIGATION AND WILL BASE ADDITIONAL REQ'MENTS ON THE FINDINGS OF THAT RI.

- CHEMICALS PRESENT: DICHLOROETHANE
  TRICHLOROETHYLENE
  AMONG OTHERS

- THERE ARE 2 OR 3 DUMPS OVER A 2-ACRE AREA. THE PLANT OCCUPIES A MUCH LARGER AREA.

- PEOPLE IN THE AREA WHO ARE ON WELLS HAVE BEEN AND ARE BEING SUPPLIED BOTTLED WATER.

- MR. AULT DID NOT KNOW EXACT CONCENTRATIONS; HOWEVER THEY DID NOT SEEM TO BE TREMENDOUSLY HIGH IN THE SOIL OR GROUNDWATER.

Michael G. Holman

form. He gave other information as follows:

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- Genesco & Tenn Superfund's ongoing site inv. includes sampling of the site.

6.

UNSCANNABLE

MEDIA

(PHOTOGRAPHS)